

ANNUAL PERFORMANCE REPORT

OF THE

GRANULAR ACTIVATED CARBON TREATMENT SYSTEM

FOR 1992

US EPA RECORDS CENTER REGION 5



513912

SUBMITTED TO THE

REGIONAL ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EXECUTIVE DIRECTOR
MINNESOTA POLLUTION CONTROL AGENCY

COMMISSIONER
MINNESOTA DEPARTMENT OF HEALTH

BY

THE CITY OF ST. LOUIS PARK, MINNESOTA

PURSUANT TO
CONSENT DECREE - REMEDIAL ACTION PLAN
SECTION 4.3.5.

UNITED STATES OF AMERICA, ET AL.

VS.

REILLY TAR & CHEMICAL CORPORATION, ET AL.

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
CIVIL NO. 4-80-469

MARCH 15, 1993



CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 15, 1993

Regional Administrator
United States Environmental
Protection Agency, Region 5
ATTN: Darryl Owens
Mail Code 5HS-11
230 South Dearborn Street
Chicago, Illinois 60604

President
Reilly Industries, Inc.
1510 Market Square Center
151 North Delaware
Indianapolis, Indiana 46204

Director, Solid and Hazardous
Waste Division
Minnesota Pollution Control Agency
ATTN: Site Response Section
520 Lafayette Road North
St. Paul, Minnesota 55155

Commissioner
Minnesota Department of Health
717 Delaware Street S.E.
P.O. Box 9441
Minneapolis, MN 55440

RE: United States of America, et al. vs. Reilly Tar &
Chemical Corporation, et al.
File No. Civ. 4-80-469

Gentlemen and Ms. Marschall:

Enclosed is the 1992 annual performance report of the Granular Activated Carbon treatment system submitted pursuant to Section 4.3.5. of the Consent Decree-Remedial Action Plan in the above captioned matter. This report is issued by the City in accordance with Section 2(a) of the Reilly/St. Louis Park Agreement (Exhibit B to the Consent Decree).

Sincerely,

A handwritten signature in cursive ink that reads "James N. Grube".

James N. Grube
Director of Public Works

JNG/cmr
enclosure

cc: William Gregg (w/2 enclosures)
Elizabeth Thompson (w/o enclosure)
Reilly File

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INTRODUCTION

The Consent Decree in the United States of America, et al. vs. Reilly Tar & Chemical Corporation (now known as Reilly Industries, Inc. -- Reilly), et al. (United States District Court, Minnesota, Civil No. 4-80-469) was signed by Judge Magnuson on September 3, 1986 and entered by the Court on the following day. The Effective Date of the Consent Decree is, therefore, September 4, 1986 (see Part EE of the Consent Decree).

Exhibit A (the Remedial Action Plan -- RAP) to, and an integral and enforceable part of, the Consent Decree (per Part F thereof) requires the responsible party to report the results of all monitoring of the Granular Activated Carbon (GAC) treatment system during the previous calendar year in accordance with the provisions of Section 4.3.5. therein. By Agreement between the City of St. Louis Park, Minnesota (City) and Reilly (Reilly/City Agreement) (Exhibit B to, and an integral and enforceable part of the Consent Decree, per Part Q thereof, as to the rights and responsibilities between the City and Reilly) the City is responsible for monitoring the treatment system and submitting the results of said monitoring.

HISTORY OF GAC TREATMENT SYSTEM OPERATIONS - 1992

Operation

The City operated the GAC treatment system in compliance with Section 4.2. of the RAP during 1992, treating 518.0 million gallons of water. The lowest monthly pumping total was 10.7 million gallons (in April), while the highest monthly pumping total was 63.9 million gallons (in October).

The GAC treatment system remained in a full time, operational mode until February 24, 1992 when the City received the results December 18, 1991 monitoring wherein it was determined that the sum of Other Polynuclear Aromatic Hydrocarbons (PAH) exceeded the Drinking Water Criterion established in Section 2.2 of the RAP. On February 25, the City notified the United States Environmental Protection Agency (USEPA), Minnesota Pollution Control Agency (MPCA), and Reilly of the results of the December 18, 1991 laboratory analyses, indicating that the carbon would be replaced.

Although the treatment system was shut down on February 24, 1992 and not returned to service until May 1, the system was operated between March 18 and March 25, and April 22 and April 30. The purpose of the two operations was to attain the required minimum monthly pumping rate of 10 million gallons (per RAP Section 4.2.1). To attain the minimum monthly pumping rate and avoid the introduction of the treated effluent into the municipal drinking water supply, the effluent was discharged to surface waters.

While greater detail relative to monitoring is provided later in this Report, following is a summary of the monthly pumpage volumes which confirms that the intent of RAP Section 4.2.1. has been met (i.e. a minimum of 200 million gallons must be pumped from SLP 10/15 annually and 10 million gallons must be pumped monthly).

<u>Month</u>	<u>Treated Water Volume (Million Gallons)</u>
January	48.2
February	37.8
March	11.6
April	<u>10.7</u>
Subtotal (Prior to GAC Replacement)	108.3
May	40.0
June	46.9
July	48.2
August	58.0
September	57.3
October	63.9
November	61.8
December	<u>33.6</u>
Subtotal (After GAC Replacement)	409.7
 Total (Annual Pumpage) 518.0	

A review of records indicates 334.7 million gallons of water were treated by the system's sixth carbon load between May, 1991 and April, 1992 (226.4 million gallons in 1991, 108.3 million gallons in 1992).

Monitoring

The 1992 monitoring program was jointly conducted by the City and Rocky Mountain Analytical Laboratory (RMAL). The City retrieved all samples and RMAL was responsible for analytical services. Laboratory analyses were conducted at the RMAL laboratory in Arvada, Colorado.

1992 began with the City monitoring the performance of the GAC treatment system as it operated under full time, operational conditions. The 1992 monitoring schedule, as established in the 1992 Sampling Plan developed in accordance with the requirements of Section 3.3 of the RAP, provided for quarterly monitoring of the treatment system effluent and annual monitoring of the treatment system feed water.

Based upon the results of December 18, 1991 monitoring, the City notified the USEPA, MPCA, and Reilly on February 25, 1992 that it appeared the Drinking Water Criterion for Other PAH, established in Section 2.2. of the RAP, had been exceeded and that the City had elected to replace the GAC filter system. Pursuant to replacement of the GAC filter system between April 30 and May 1, the City returned the treatment facility to service on May 6, and the USEPA, MPCA, and Reilly were so advised on May 13.

Monitoring during the second quarter of 1992 was uneventful. Results of the third quarter monitoring are not available due to laboratory error which rendered the data unusable. The results of the fourth quarter indicated that the total of Other PAH appeared to exceed the Advisory Level of Other PAH, established in Section 2.2 of the RAP. Accordingly, the City elected to remove the system from service. In correspondence dated December 18, 1992, the City notified the USEPA, MPCA, and Reilly of the results of the fourth quarter 1992 monitoring, and indicated the system had been removed from service pending GAC filter system replacement.

A summary of the 1992 monitoring is provided below. The summary provides monitoring results for the sixth load of GAC (changed out April 29 - May 1, 1992) and the seventh load of GAC (service period May 6 through December 18).

RESULTS OF MONITORING OF SIXTH LOAD OF GAC (SERVICE 2/19/91-4/29/92)

NOTE: ALL REPORTED CONCENTRATIONS ARE IN PARTS PER TRILLION

DATE	GAC FEED WATER SAMPLES		GAC TREATED WATER SAMPLES		FIELD BLANK/METHOD BLANK	
	OTHER <u>PAH TOTAL</u>	CARCINOGENIC <u>PAH TOTAL</u>	OTHER <u>PAH TOTAL</u>	CARCINOGENIC <u>PAH TOTAL</u>	OTHER <u>PAH TOTAL</u>	CARCINOGENIC <u>PAH TOTAL</u>
02/19/92	5,480	ND	1,922/1,770.4	ND/ND	58.1/13.3/10.3	ND/ND/ND

- ND - Not Detected
- XX/XX - Indicates results of multiple monitoring (except Field Blank/Method Blank)
 - For Field Blank/Method Blank monitoring
 - Indicates Field Blank/Method Blank results
 - XX/XX/XX - For Field Blank/Method Blank monitoring
 - Indicates Field Blank/Method Blank/Method Blank results
- NS - Not Sampled

RESULTS OF MONITORING OF SEVENTH LOAD OF GAC (SERVICE 5/6/92-12/31/92)

NOTE: ALL REPORTED CONCENTRATIONS ARE IN PARTS PER TRILLION

DATE	GAC FEED WATER SAMPLES		GAC TREATED WATER SAMPLES		FIELD BLANK/METHOD BLANK	
	OTHER <u>PAH TOTAL</u>	CARCINOGENIC <u>PAH TOTAL</u>	OTHER <u>PAH TOTAL</u>	CARCINOGENIC <u>PAH TOTAL</u>	OTHER <u>PAH TOTAL</u>	CARCINOGENIC <u>PAH TOTAL</u>
06/29/92	5,185	9	9/8	ND/1	86/10/2	ND/1/ND
11/30/92	NS	NS	330	ND	12/10	ND/ND

- ND - Not Detected
- XX/XX - Indicates results of multiple monitoring (except Field Blank/Method Blank)
 - For Field Blank/Method Blank monitoring
 - Indicates Field Blank/Method Blank results
 - XX/XX/XX - For Field Blank/Method Blank monitoring
 - Indicates Field Blank/Method Blank/Method Blank results
- NS - Not Sampled

December 1, 1992 monitoring included laboratory analysis of the treated water for an extended list of PAH and acid fractions pursuant to the provisions of Section 4.3.4. of the RAP. No compounds contained in the extended list of PAH or acid fractions were detected.

QAPP92/APR92

APPENDIX A



Enseco - RMAL Project Number 021043

Introduction

Twelve aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on February 20, 1992. The samples were logged in under RMAL project number 021043. Sample GAC-SLP10FBD-021992 (RMAL 021043-0005) was extracted and held as per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Samples 021043-01, 01DU, 02, 03, 06, and 06DU, show target compounds above the upper calibration range. The samples were reanalyzed at dilutions. Both the original and reanalysis data are reported for each sample. Surrogates could not be measured in samples 21043-02DL, -03DL, 06DL, and 06DUDL due to the level of dilutions performed.

Samples 021043-01DL, 03, 04, 06, 06DU, 06MS, 06SD, and one of the associated blanks (BLK01) show surrogates which have exceeded the upper control limits. All instrument calibration, surrogate standard concentration, etc. were checked and found to be in control.



Case Narrative - RMAL #021043
April 12, 1992
Page Two

Matrix spike recoveries for Quinoline and Fluorene in samples -01MS and -01SD are high due to both background interference, and the level of these compounds present in the associated samples.

Matrix spike recoveries for 1H-Indene, Naphthalene, 2-Methylnaphthalene, Fluorene, and Benzo(E)Pyrene in samples -06MS and -06SD are high due to both background interference, and the level of these compounds present in the associated samples.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples and the associated method blanks show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with asterisk (*) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Julieann Kramer
Julieann L. Kramer
Program Administrator

Date: April 12, 1992

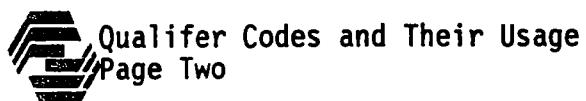
Approved by: Mark Dymerski
Mark Dymerski
Technical Manager

Date: 4/13/92



Qualifier Codes and Their Usage

- U** = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.
- J** = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mas spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.
- P** = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- C** = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.



Qualifier Codes and Their Usage
Page Two

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Received Time	Received Date
021043-0001-SA	GAC-SLP10T-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0001-DU	GAC-SLP10TD-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0001-MS	GAC-SLP10MS-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0001-SD	GAC-SLP10MSD-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0002-SA	WTF-ACFE-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0003-SA	GAC-SLP10F-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0004-SA	GAC-SLP10FB-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0005-SA	GAC-SLP10FBD-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0006-SA	STP-W410-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0006-DU	STP-W410D-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0006-MS	STP-W410MS-021992	AQUEOUS	19 FEB 92		20 FEB 92
021043-0006-SD	STP-W410MSD-021992	AQUEOUS	19 FEB 92		20 FEB 92



Rocky Mountain Analytical Laboratory

4955 Yarrow Street

Arvada, CO 80002

303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

ENSECO CLIENT

CITY OF ST LOUIS PARK WATER DEPT

PROJECT

SAMPLING COMPANY

SAME

SAMPLING SITE

SAME

TEAM LEADER

M 28

SAMPLE SAFE™ CONDITIONS

PACKED BY

SHIPPED BY

SEAL NUMBER

SEAL NUMBER

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY

CONDITION OF CONTENTS

CONTENTS TEMPERATURE

INITIAL CONTENTS TEMP.

°C

SEAL NUMBER

SAMPLING STATUS

Done Continuing Until

SEAL INTACT UPON RECEIPT BY LAB.

Yes No

CONTENTS TEMPERATURE UPON RECEIPT BY LAB.

°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-19-92		GAC-SLP10MS -021992	1XL AMBER	6	PPT PAH	01 MS -03 ang
2-19-92		GAC-SLP10MSD -021992	1XL AMBER	6	PPT PAH	01 SD -03 SD
					(C) SAMPLE DETAILS	
					Sample ID - Quality	
					Sample ID - Description	
					No. of Containers - N	
					Analysis Parameters - A	
					Storage Instructions - S	
					Comments - C	
					Comments - P	
					Comments - L	
					Comments - T	
					Comments - R	
					Comments - H	
					Comments - D	
					Comments - E	
					Comments - F	
					Comments - G	
					Comments - I	
					Comments - J	
					Comments - K	
					Comments - L	
					Comments - M	
					Comments - N	
					Comments - O	
					Comments - P	
					Comments - Q	
					Comments - R	
					Comments - S	
					Comments - T	
					Comments - U	
					Comments - V	
					Comments - W	
					Comments - X	
					Comments - Y	
					Comments - Z	

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY	SHIPPING DETAILS
				METHOD OF SHIPMENT	AIRBILL NUMBER
				FEDEX	2864993622
				RECEIVED FOR LAB	DATE/TIME
				R.M.A.C.	02/20/92 0830
				ENSCO PROJECT NUMBER	
				21043	



A Corning Company

Rocky Mountain Analytical Laboratory

4955 Yarrow Street

Aryada, CO 80002

303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY
		11/20/92	11:00 AM	<i>M.Z.R.</i> <i>SHIPPING DEPARTMENT</i> <i>(3)</i>
				METHOD OF SHIPMENT <i>FED EXP</i>
				AIRBILL NUMBER <i>2864993622</i>
				RECEIVED FOR LAB <i>R.M.A.L.</i>
				SIGNED IN 12-13-92 <i>Greta Chappell</i>
				DATE/TIME <i>3/20/92</i>
				ENSCO PROJECT NUMBER <i>21043</i>



A Corning Company

Rocky Mountain Analytical Laboratory

• 4955 Yarrow Street

Arvada, CO 80002

303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

PROJECT				PACKED BY	SEAL NUMBER	
CITY OF ST LOUIS PARK WATER DEPT				21043	19362	
SAMPLING COMPANY				SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS	
SAME				21043	INTACT	
SAMPLING SITE				SEALED FOR SHIPPING BY	INITIAL CONTENTS TEMP.	
SAME				21043	0°C	
TEAM LEADER				SEAL NUMBER	SAMPLING STATUS	
M.J.H.				21043	<input type="checkbox"/> Done <input type="checkbox"/> Continuing Until	
DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-19-92		WTF-ACFE -021992	1XL AMBER	6	PPT PAH	-02
2-19-92		WSTP-W410MSD -021992	1XL AMBER	6	PPT PAH	-06SD -04MSD
C) SAMPLE DETAILS						
Sample ID Description						
Sample Date						
No. of Containers						
Analysis Parameters						
Bottle Type						
C) CUSTODY TRANSFERS PRIOR TO SHIPPING						
SHIPPING DETAILS						
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY	METHOD OF SHIPMENT	
		2/19/92	10:00 AM	21043	FED EXP	
				R.M.A.C.	RECEIVED FOR LAB	SIGNED IN CHARGE
				R.M.A.C.	21043	DATE/TIME
				R.M.A.C.	21043	2/20/92 0830
ENSCO PROJECT NUMBER						
MIA: 100 Waller Dr., Suite 100, Dallas, TX 75201						



Rocky Mountain Analytical Laboratory

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2303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

ENSECO CLIENT

CITY OF ST LOUIS PARK WATER DEPT

PROJECT

SAMPLING COMPANY

SAME

SAMPLING SITE

SAME

TEAM LEADER

M J SW

SAMPLE SAFE™ CONDITIONS

PACKED BY

73281

SEAL NUMBER

SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY

CONDITION OF CONTENTS

SEALED FOR SHIPPING BY

73281

INITIAL CONTENTS TEMP.

°C

SEAL NUMBER

73281

SAMPLING STATUS

Done

Continuing Until

SEAL INTACT UPON RECEIPT BY LAB.

73281

CONTENTS TEMPERATURE UPON RECEIPT BY LAB.

°C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-19-92		GAC-SLP10FB -021992	IXL AMBER	C	PPT PAH	-04
2-19-92		GAC-SLP10FBD -021992	IXL AMBER	G	PPT PAH	-05
2-19-92		GAC-SLP10F -021992	IXL AMBER	G	PPT PAH	-03
					SAMPLE DETAILS	
					Sample Name - Collection	
					Sample ID/Description	
					Sample Type -	
					No. of Containers -	
					Method of Sampling -	
					Analysis Parameters -	
					Comments -	
					(U) CUSTODY TRANSFERRED	
					To Lab No. 1670	
					Time of transfer to Lab No. 1670	
					Date of transfer to Lab No. 1670	

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY	SHIPMENT NUMBER	AIRBILL NUMBER
				73281	73281	286499 3622
				METHOD OF SHIPMENT		
				FED EXP		



Rocky Mountain Analytical Laboratory

4955 Yarrow Street

Arvada, CO 80002

303/421-6611, FAX: 303/431-7171

CHAIN OF CUSTODY

ENSECO CLIENT

CITY OF ST LOUIS PARK WATER DEPT

PROJECT

101740

SAMPLING COMPANY

SAME

SAMPLING SITE

SAME

TEAM LEADER

MZB

		SAMPLE ID/DESCRIPTION		SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
2-19-92		STP-W410-021992		IXL AMBER	6	PPT PAH	06SA-D4-SA
2-19-92		STP-W4100-021992		IXL AMBER	6	PPT PAH	06DU-040A
2-19-92		STP-W410MS-021992		IXL AMBER	6	PPT PAH	06MS-04AS
						SAMPLE DETAILS	
						DATE TIME - Condition	
						Sample Initial Condition	
						No. of Containers	
						CONTAINER NUMBER	
						CUSTODY TRANSFER	
						RECEIVED BY	

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY	SHIPPING DETAILS
				MZB	
				FED EXP	AIRBILL NUMBER 2864993622
				R.M.A.C.	DATE/TIME 2/20/92 0830



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

**BOTTLE ORDER
CHAIN OF CUSTODY**
ENS-4002

RMAIL CLIENT ID CISMA01	CLIENT P.O. NUMBER	INVOICE NUMBER	
TO Mr Jim Crumble	PICK-UP ON (DATE)	TIME	<input type="checkbox"/> AM <input type="checkbox"/> PM Feb 16 1992
	SHIP BY		
	UPS CHARGES	FED EX CHARGES	CLIENT FED EX ACCOUNT NUMBER
	COOLERS BILLED TO (SPECIFY CLIENT ID)		

DI	GALLONS	CARBON FREE	GALLONS	MILLI-Q	GALLONS
NUMBER OF BOTTLES	STANDARD WATER	PARAMETERS	NUMBER OF BOTTLES	BULK WATER	PARAMETERS
1.	1. 32 oz. poly (WM) 20% HNO3	Alkalinity, BOD, Chloride, Color, Res. Chlorine, pH, Chromium (VI), Conductance, Fluoride, Nitrite, MBAS, Ortho-Phos, Solids, Sulfate, Sulfite, Turbidity	20	1/2-gallon glass	Bulk water analysis
2.	2. 16 oz. glass (BR) 50% H2SO4	Ammonia, COD, Nitrate; TKN, TON, Nitrate & Nitrite; Total Phos, TOC, Phenolics	21	1 gallon glass	
3.	3. 32 oz. glass (BR) 50% H2SO4	TPH, Oil & Grease		SOLIDS	
4.	4. 16 oz. poly (WM) 20% HNO3	Metal, Hardness	30	16 oz. glass (WM)	Organics, TPH, Metals, RAD, Oil & Grease
5.	5. 2-32 oz. poly (BR) 20% HNO3	Gross Alpha, Gross Beta, Uranium, Radium 226, Radium 228	31	8 oz. glass (WM)	Wet Chem not listed for '30
6.	6. 8 oz. poly (WM) 50% NaOH	Total and/or Free Cyanide	32	4 oz. glass (WM)	VOA
7.	7. 8 oz. poly (WM) Zn Ac & NaOH	Sulfide		TCLP	
8.	8. 4.5 oz. poly sterilize	Fecal or Total Coliform (use 2 bottles if both required)	33	32 oz. glass (WM) 4 oz. glass (WM)	All other analyses VOA
10.	10. 3-40 ml glass w/septa, Na2S2O3	THM		OTHER	
10A.	Trip Blank		7	Ambient	Bottle DI Water
11.	11. 3-40 ml glass w/septa, HCl w/out HCl	VOA, Purgeable Organics			Blanks
11A.	Trip Blank				
45	12. 2-32 oz. glass (BR)	Base Neutral/Acid Compounds Amber Teflon S		BLUE ICE REQUIRED	<input type="checkbox"/> YES <input type="checkbox"/> NO
	13. 2-32 oz. glass (BR)	Pesticides, PCBs		SPECIAL REQUIREMENTS	<i>Send as few coolers as possible -</i>
	14. 32 oz. glass (BR)	Herbicides			
	15. Single: 8 oz. amber glass (BR) Quad: 32 oz. amber glass (BR) 50% H2SO4	TOX-Single: -Quad:		SAMPLE SAFE/COOLER NUMBERS	<i>3233 + 3 boxes of unopened bottles</i>

REQUEST BY	DATE	TIME	<input type="checkbox"/> AM <input type="checkbox"/> PM
------------	------	------	---

RELINQUISHED BY SIGNATURE <i>Robert M. Ritz</i>	RECEIVED BY SIGNATURE <i>Michael J. Higgins</i> 9:30 AM	DATE 15 FEB 92	TIME 0830 hrs



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

BOTTLE ORDER
CHAIN OF CUSTODY
ENS-4002

RMAIL CLIENT ID <i>CJ Smn - 1</i>		CLIENT P.O. NUMBER		INVOICE NUMBER	
SHIP TO <i>John Gray City St. Rose Park -</i>		PICK-UP ON (DATE) <i>-</i>	TIME	<input type="checkbox"/> AM	DELIVERED BY (DATE) <i>2/19</i>
		SHIP BY			
		UPS CHARGES	FED EX CHARGES	CLIENT FED EX ACCOUNT NUMBER	
		COOLERS BILLED TO (SPECIFY CLIENT ID)			
DI	GALLONS	CARBON FREE	GALLONS	MILLI-Q	GALLONS
NUMBER OF BOTTLES	STANDARD WATER	PARAMETERS	NUMBER OF BOTTLES	BULK WATER	PARAMETERS
1.	1. 32 oz. poly (WM)	Alkalinity, BOD, Chloride, Color, Res. Chlorine, pH, Chromium (VI), Conductance, Fluoride; Nitrite, MBAS, Ortho-Phos, Solids, Sulfate, Sulfite, Turbidity		20. ½ gallon glass	Bulk water analysis
	2. 16 oz. glass (BR) 50% H ₂ SO ₄	Ammonia, COD, Nitrate, TKN, TON, Nitrate & Nitrite, Total Phos, TOC, Phenolics		21. 1 gallon glass	
	3. 32 oz. glass (BR) 50% H ₂ SO ₄	TPH, Oil & Grease		SOLIDS	
	4. 16 oz. poly (WM) 20% HNO ₃	Metals, Hardness		30. 16 oz. glass (WM)	Organics, TPH, Metals, RAD, Oil & Grease
	5. 2-32 oz. poly (BR) 20% HNO ₃	Gross Alpha, Gross Beta, Uranium, Radium 226, Radium 228		31. 8 oz. glass (WM)	Wet Chem not listed for "30"
	6. 8 oz. poly (WM) 50% NaOH	Total and/or Free Cyanide		32. 4 oz. glass (WM)	VOA
	7. 8 oz. poly (WM) Zn Ac & NaOH	Sulfide		TCLP	
	8. 4.5 oz. poly sterile	Fecal or Total Coliform (use 2 bottles if both required)		33. 32 oz. glass (WM) 4 oz. glass (WM)	All other analyses VOA
	10. 3-40 ml glass w/septa, Na ₂ S2O ₃	THM		OTHER	
	10A. Trip Blank			<i>6 Sample 0 EAT carbo</i>	
	11. 3-40 ml glass w/septa, HCl w/out HCl	VOA, Purgeable Organics			
	11A. Trip Blank				
12	12. 2-32 oz. glass (BR) <i>Amber</i>	Base Neutral/Acid Compounds <i>lators</i>		BLUE ICE REQUIRED	<input type="checkbox"/> YES <input type="checkbox"/> NO
	13. 2-32 oz. glass (BR)	Pesticides, PCBs		SPECIAL REQUIREMENTS <i>Meet line Wed Morn</i>	
	14. 32 oz. glass (BR)	Herbicides			
	15. Single: 8 oz. amber glass (BR) Quad: 32 oz. amber glass (BR) 50% H ₂ SO ₄	TOX-Single: Quad:		SAMPLE SAFE/COOLER NUMBERS <i>3317</i>	
REQUEST BY		DATE	TIME	<input type="checkbox"/> AM	<input type="checkbox"/> PM
RELINQUISHED BY SIGNATURE <i>Robert M. Roitz</i>		RECEIVED BY SIGNATURE <i>Michael J. Reggian 9:30 am</i>	DATE <i>18 FEB 92</i>	TIME <i>1200 NOON</i>	
		2 - 19 - 92			

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FOR
CITY OF ST. LOUIS PARK
RMAL PROJECT# 021043

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SUMMARY

DATA

PACKAGE

FOR

CITY OF ST. LOUIS PARK
RML # 21043

1B
SEMICVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-01

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO

Case No.: 21043

SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 21043-01

Sample wt/vol: 4050 (g/ml) ML

Lab File ID: C5450

Level: (low/med) LOW

Date Received: 02/20/92

% Moisture: not dec. dec.

Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.123

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	1.0	J
496-11-7-----	2,3-Dihydroindene	260	E *
95-13-6-----	1H-Indene	18	
91-20-3-----	Naphthalene	11	B
4565-32-6-----	Benzo(B)Thiophene	88	*
91-22-5-----	Quinoline	1.4	U
120-72-9-----	1H-Indole	1.9	J *
91-57-6-----	2-Methylnaphthalene	5.0	B
90-12-0-----	1-Methylnaphthalene	19	B
92-52-4-----	Biphenyl	80	
208-96-8-----	Acenaphthylene	170	E *
83-32-9-----	Acenaphthene	290	E
132-64-9-----	Dibenzofuran	69	
86-73-7-----	Fluorene	250	E
132-65-0-----	Dibenzothiophene	23	
85-01-8-----	Phenanthrene	11	B
120-12-7-----	Anthracene	5.4	
260-94-6-----	Acridine	5.1	*
86-74-8-----	Carbazole	10	*
206-44-0-----	Fluoranthene	64	B
129-00-0-----	Pyrene	51	B *
56-55-3-----	Benzo(A)Anthracene	2.5	
218-01-9-----	Chrysene	1.9	J
205-99-2-----	Benzo(B)Fluoranthene	2.5	U
207-08-9-----	Benzo(K)Fluoranthene	2.3	U
192-97-2-----	Benzo(E)Pyrene	1.9	U
50-32-8-----	Benzo(A)Pyrene	2.3	U
198-55-0-----	Perylene	2.5	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	U
53-70-3-----	Dibenz(A,H)Anthracene	1.6	U
191-24-2-----	Benzo(G,H,I)Perylene	2.8	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-01DL

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 21043-01DL

Sample wt/vol: 4050 (g/ml) ML Lab File ID: C5462

Level: (low/med) LOW Date Received: 02/20/92

% Moisture: not dec. dec. Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.494

CAS NO.	COMPOUND	CONCENTRATION UNITS: NG/L	Q
---------	----------	---------------------------	---

271-89-6-----	2,3-Benzofuran	20	U
496-11-7-----	2,3-Dihydroindene	490	D
95-13-6-----	1H-Indene	3.6	U
91-20-3-----	Naphthalene	13	BDJ
4565-32-6-----	Benzo(B)Thiophene	100	D
91-22-5-----	Quinoline	5.5	U
120-72-9-----	1H-Indole	9.9	U
91-57-6-----	2-Methylnaphthalene	5.1	BD
90-12-0-----	1-Methylnaphthalene	21	BD
92-52-4-----	Biphenyl	88	D
208-96-8-----	Acenaphthylene	170	DD *
83-32-9-----	Acenaphthene	470	DD
132-64-9-----	Dibenzofuran	81	DD
86-73-7-----	Fluorene	320	DD
132-65-0-----	Dibenzothiophene	25	D
85-01-8-----	Phenanthrene	14	BD
120-12-7-----	Anthracene	5.2	D
260-94-6-----	Acridine	11.4	DU
86-74-8-----	Carbazole	7.7	D *
206-44-0-----	Fluoranthene	59	BD
129-00-0-----	Pyrene	53	BD
56-55-3-----	Benzo(A)Anthracene	9.9	U
218-01-9-----	Chrysene	11	UU
205-99-2-----	Benzo(B)Fluoranthene	9.9	UU
207-08-9-----	Benzo(K)Fluoranthene	9.1	U
192-97-2-----	Benzo(E)Pyrene	7.5	U
50-32-8-----	Benzo(A)Pyrene	9.1	U
198-55-0-----	Perylene	9.9	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	8.3	U
53-70-3-----	Dibenz(A,H)Anthracene	6.3	U
191-24-2-----	Benzo(G,H,I)Perylene	11	U

IB
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-01DU

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 21043-01DU

Sample wt/vol: 3980 (g/ml) ML Lab File ID: C5451

Level: (low/med) LOW Date Received: 02/20/92

% Moisture: not dec. dec. Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.126

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5.1	U
496-11-7-----	2,3-Dihydroindene	240	E *
95-13-6-----	1H-Indene	19	#
91-20-3-----	Naphthalene	8.5	B
4565-32-6-----	Benzo(B)Thiophene	82	*
91-22-5-----	Quinoline	1.4	U
120-72-9-----	1H-Indole	3.0	*
91-57-6-----	2-Methylnaphthalene	4.1	B
90-12-0-----	1-Methylnaphthalene	17	B
92-52-4-----	Biphenyl	76	
208-96-8-----	Acenaphthylene	180	E *
83-32-9-----	Acenaphthene	290	E #
132-64-9-----	Dibenzofuran	68	
86-73-7-----	Fluorene	240	E
132-65-0-----	Dibenzothiophene	23	
85-01-8-----	Phenanthrene	12	B
120-12-7-----	Anthracene	7.5	
260-94-6-----	Acridine	5.0	*
86-74-8-----	Carbazole	7.5	*
206-44-0-----	Fluoranthene	63	B
129-00-0-----	Pyrene	51	B
56-55-3-----	Benzo(A)Anthracene	1.9	J
218-01-9-----	Chrysene	1.4	J
205-99-2-----	Benzo(B)Fluoranthene	2.5	U
207-08-9-----	Benzo(K)Fluoranthene	2.3	U
192-97-2-----	Benzo(E)Pyrene	1.9	U
50-32-8-----	Benzo(A)Pyrene	2.3	U
198-55-0-----	Perylene	2.5	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	U
53-70-3-----	Dibenz(A,H)Anthracene	1.6	U
191-24-2-----	Benzo(G,H,I)Perylene	2.8	U

Compound is saturated

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-01DUDL

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 21043-01DUDL

Sample wt/vol: 3980 (g/ml) ML Lab File ID: C5463

Level: (low/med) LOW Date Received: 02/20/92

% Moisture: not dec. dec. Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/30/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.503

CAS NO.	COMPOUND	CONCENTRATION UNITS: NG/L		
				Q
271-89-6-----	2,3-Benzofuran	20		U
496-11-7-----	2,3-Dihydroindene	450	D	
95-13-6-----	1H-Indene	21	D	
91-20-3-----	Naphthalene	9.1	BD	
4565-32-6-----	Benzo(B)Thiophene	94	D	
91-22-5-----	Quinoline	5.6	U	
120-72-9-----	1H-Indole	10	U	
91-57-6-----	2-Methylnaphthalene	4.1	BD*	
90-12-0-----	1-Methylnaphthalene	18	BD*	
92-52-4-----	Biphenyl	80	D	
208-96-8-----	Acenaphthylene	160	D *	
83-32-9-----	Acenaphthene	430	D	
132-64-9-----	Dibenzofuran	73	D	
86-73-7-----	Fluorene	280	D	
132-65-0-----	Dibenzothiophene	24	D	
85-01-8-----	Phenanthrene	13	BD	
120-12-7-----	Anthracene	6.4	D	
260-94-6-----	Acridine	12	U	
86-74-8-----	Carbazole	4.8	DJ*	
206-44-0-----	Fluoranthene	54	BD	
129-00-0-----	Pyrene	49	BD	
56-55-3-----	Benzo(A)Anthracene	10	U	
218-01-9-----	Chrysene	11	U	
205-99-2-----	Benzo(B)Fluoranthene	10	U	
207-08-9-----	Benzo(K)Fluoranthene	9.2	U	
192-97-2-----	Benzo(E)Pyrene	7.6	U	
50-32-8-----	Benzo(A)Pyrene	9.2	U	
198-55-0-----	Perylene	10	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	8.4	U	
53-70-3-----	Dibenz(A,H)Anthracene	6.4	U	
191-24-2-----	Benzo(G,H,I)Perylene	11	U	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-03

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 21043-03

Sample wt/vol: 4060 (g/ml) ML Lab File ID: C5455

Level: (low/med) LOW Date Received: 02/20/92

% Moisture: not dec. dec. Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.123

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	2.8	J
496-11-7-----	2,3-Dihydroindene	360	*
95-13-6-----	1H-Indene	57	
91-20-3-----	Naphthalene	15	
4565-32-6-----	Benzo(B)Thiophene	210	
91-22-5-----	Quinoline	1.4	UU
120-72-9-----	1H-Indole	2.5	BB
91-57-6-----	2-Methylnaphthalene	6.5	
90-12-0-----	1-Methylnaphthalene	52	B*
92-52-4-----	Biphenyl	220	EE*
208-96-8-----	Acenaphthylene	320	#
83-32-9-----	Acenaphthene	430	EE#
132-64-9-----	Dibenzofuran	200	E#
86-73-7-----	Fluorene	380	E#
132-65-0-----	Dibenzothiophene	74	
85-01-8-----	Phenanthrene	28	B
120-12-7-----	Anthracene	20	*
260-94-6-----	Acridine	14	
86-74-8-----	Carbazole	27	
206-44-0-----	Fluoranthene	190	BE
129-00-0-----	Pyrene	150	BE
56-55-3-----	Benzo(A)Anthracene	7.1	
218-01-9-----	Chrysene	4.8	
205-99-2-----	Benzo(B)Fluoranthene	2.5	U
207-08-9-----	Benzo(K)Fluoranthene	2.3	U
192-97-2-----	Benzo(E)Pyrene	1.9	UU
50-32-8-----	Benzo(A)Pyrene	2.3	UU
198-55-0-----	Perylene	2.5	UU
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	UU
53-70-3-----	Dibenz(A,H)Anthracene	1.6	UU
191-24-2-----	Benzo(G,H,I)Perylene	2.8	UU

Compound is saturated

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-03DL

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 21043-03DL

Sample wt/vol: 4060 (g/ml) ML

Lab File ID: C5466

Level: (low/med) LOW

Date Received: 02/20/92

% Moisture: not dec.

dec.

Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/30/92

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 12.3

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	500	U
496-11-7-----	2,3-Dihydroindene	1600	DU
95-13-6-----	1H-Indene	89	UU
91-20-3-----	Naphthalene	640	UU
4565-32-6-----	Benzo(B)Thiophene	370	D
91-22-5-----	Quinoline	140	UU
120-72-9-----	1H-Indole	250	UU
91-57-6-----	2-Methylnaphthalene	89	UU
90-12-0-----	1-Methylnaphthalene	160	U
92-52-4-----	Biphenyl	280	DJ
208-96-8-----	Acenaphthylene	450	D
83-32-9-----	Acenaphthene	1300	D
132-64-9-----	Dibenzofuran	240	D
86-73-7-----	Fluorene	900	D
132-65-0-----	Dibenzothiophene	110	UU
85-01-8-----	Phenanthrene	130	UU
120-12-7-----	Anthracene	110	UU
260-94-6-----	Acridine	290	U
86-74-8-----	Carbazole	190	U
206-44-0-----	Fluoranthene	170	BD
129-00-0-----	Pyrene	170	BD
56-55-3-----	Benzo(A)Anthracene	250	UU
218-01-9-----	Chrysene	280	UU
205-99-2-----	Benzo(B)Fluoranthene	250	UU
207-08-9-----	Benzo(K)Fluoranthene	230	UU
192-97-2-----	Benzo(E)Pyrene	190	UU
50-32-8-----	Benzo(A)Pyrene	230	UU
198-55-0-----	Perylene	250	UU
193-39-5-----	Indeno(1,2,3-CD)Pyrene	210	UU
53-70-3-----	Dibenz(A,H)Anthracene	160	UU
191-24-2-----	Benzo(G,H,I)Perylene	280	UU

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-04

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 21043-04

Sample wt/vol: 4060 (g/ml) ML Lab File ID: C5456

Level: (low/med) LOW Date Received: 02/20/92

% Moisture: not dec. dec. Date Extracted: 02/25/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.123

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5.0	U
496-11-7-----	2,3-Dihydroindene	2.4	
95-13-6-----	1H-Indene	1.6	
91-20-3-----	Naphthalene	16	B *
4565-32-6-----	Benzo(B)Thiophene	1.2	
91-22-5-----	Quinoline	1.4	UU
120-72-9-----	1H-Indole	2.5	UU
91-57-6-----	2-Methylnaphthalene	11	B
90-12-0-----	1-Methylnaphthalene	4.7	B
92-52-4-----	Biphenyl	2.8	BJ*
208-96-8-----	Acenaphthylene	1.4	U
83-32-9-----	Acenaphthene	2.5	
132-64-9-----	Dibenzofuran	1.8	B *
86-73-7-----	Fluorene	2.4	
132-65-0-----	Dibenzothiophene	1.1	U
85-01-8-----	Phenanthrene	6.7	B
120-12-7-----	Anthracene	1.1	UU
260-94-6-----	Acridine	2.9	UU
86-74-8-----	Carbazole	1.4	J *
206-44-0-----	Fluoranthene	1.8	
129-00-0-----	Pyrene	1.8	
56-55-3-----	Benzo(A)Anthracene	2.5	U
218-01-9-----	Chrysene	2.8	UU
205-99-2-----	Benzo(B)Fluoranthene	2.5	UU
207-08-9-----	Benzo(K)Fluoranthene	2.3	UU
192-97-2-----	Benzo(E)Pyrene	1.9	UU
50-32-8-----	Benzo(A)Pyrene	2.3	UU
198-55-0-----	Perylene	2.5	UU
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	UU
53-70-3-----	Dibenz(A,H)Anthracene	1.6	UU
191-24-2-----	Benzo(G,H,I)Perylene	2.8	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-01MS

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO

Case No.: 21043

SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 21043-01MS

Sample wt/vol: 4030 (g/ml) ML

Lab File ID: C5452

Level: (low/med) LOW

Date Received: 02/20/92

% Moisture: not dec. dec.

Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.124

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	1.1	J	*
496-11-7-----	2,3-Dihydroindene	260	E	*
95-13-6-----	1H-Indene	28		SC
91-20-3-----	Naphthalene	16	B	SC
4565-32-6-----	Benzo(B)Thiophene	81		*
91-22-5-----	Quinoline	23		SC
120-72-9-----	1H-Indole	3.1		*
91-57-6-----	2-Methylnaphthalene	13	B	SC
90-12-0-----	1-Methylnaphthalene	17	B	*
92-52-4-----	Biphenyl	72		
208-96-8-----	Acenaphthylene	160	E	
83-32-9-----	Acenaphthene	290	E	
132-64-9-----	Dibenzofuran	63		
86-73-7-----	Fluorene	250	E	SC
132-65-0-----	Dibenzothiophene	21		
85-01-8-----	Phenanthrene	11	B	
120-12-7-----	Anthracene	6.3		
260-94-6-----	Acridine	5.3		*
86-74-8-----	Carbazole	8.1		*
206-44-0-----	Fluoranthene	57	B	
129-00-0-----	Pyrene	45	B	
56-55-3-----	Benzo(A)Anthracene	1.8	J	
218-01-9-----	Chrysene	6.3		SC
205-99-2-----	Benzo(B)Fluoranthene	2.5	U	
207-08-9-----	Benzo(K)Fluoranthene	2.3	U	
192-97-2-----	Benzo(E)Pyrene	1.1	J	SC
50-32-8-----	Benzo(A)Pyrene	2.3	U	
198-55-0-----	Perylene	2.5	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	U	
53-70-3-----	Dibenz(A,H)Anthracene	1.6	U	
191-24-2-----	Benzo(G,H,I)Perylene	2.8	U	

Compound is saturated

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

21043-01MSD

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 21043-01MSD

Sample wt/vol: 4040 (g/ml) ML

Lab File ID: C5453

Level: (low/med) LOW

Date Received: 02/20/92

% Moisture: not dec.

dec.

Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/29/92

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.124

CAS NO.

COMPOUND

CONCENTRATION UNITS: NG/L

Q

271-89-6-----	2,3-Benzofuran	1.1	J
496-11-7-----	2,3-Dihydroindene	250	E * #
95-13-6-----	1H-Indene	28	SC
91-20-3-----	Naphthalene	20	B *SC
4565-32-6-----	Benzo(B)Thiophene	85	*
91-22-5-----	Quinoline	25	SC
120-72-9-----	1H-Indole	2.7	*
91-57-6-----	2-Methylnaphthalene	16	B SC
90-12-0-----	1-Methylnaphthalene	19	B *
92-52-4-----	Biphenyl	77	
208-96-8-----	Acenaphthylene	170	E *
83-32-9-----	Acenaphthene	280	E #
132-64-9-----	Dibenzofuran	68	
86-73-7-----	Fluorene	250	E SC
132-65-0-----	Dibenzothiophene	23	
85-01-8-----	Phenanthrene	13	B
120-12-7-----	Anthracene	6.6	
260-94-6-----	Acridine	1.3	J *
86-74-8-----	Carbazole	9.9	*
206-44-0-----	Fluoranthene	63	B
129-00-0-----	Pyrene	50	B *
56-55-3-----	Benzo(A)Anthracene	2.5	
218-01-9-----	Chrysene	9.3	SC
205-99-2-----	Benzo(B)Fluoranthene	2.5	
207-08-9-----	Benzo(K)Fluoranthene	2.3	U U
192-97-2-----	Benzo(E)Pyrene	1.4	J SC
50-32-8-----	Benzo(A)Pyrene	2.3	U
198-55-0-----	Perylene	2.5	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	U U
53-70-3-----	Dibenz(A,H)Anthracene	1.6	U
191-24-2-----	Benzo(G,H,I)Perylene	1.3	J *

Compound is saturated

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO

Case No.: 21043

SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: BLK01

Sample wt/vol: 4000 (g/ml) ML

Lab File ID: C5446

Level: (low/med) LOW

Date Received:

% Moisture: not dec. dec.

Date Extracted: 02/24/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 03/27/92

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.125

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5.1	U
496-11-7-----	2,3-Dihydroindene	1.4	U
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	4.1	J
4565-32-6-----	Benzo(B)Thiophene	0.9	J
91-22-5-----	Quinoline	1.4	U
120-72-9-----	1H-Indole	2.5	U
91-57-6-----	2-Methylnaphthalene	2.7	U
90-12-0-----	1-Methylnaphthalene	1.8	U
92-52-4-----	Biphenyl	4.3	U
208-96-8-----	Acenaphthylene	1.4	U
83-32-9-----	Acenaphthene	1.3	U
132-64-9-----	Dibenzofuran	1.0	U
86-73-7-----	Fluorene	1.0	U
132-65-0-----	Dibenzothiophene	1.1	U
85-01-8-----	Phenanthrene	4.5	U
120-12-7-----	Anthracene	1.1	U
260-94-6-----	Acridine	2.9	U
86-74-8-----	Carbazole	1.9	U
206-44-0-----	Fluoranthene	2.6	U
129-00-0-----	Pyrene	1.7	U
56-55-3-----	Benzo(A)Anthracene	2.5	U
218-01-9-----	Chrysene	2.8	U
205-99-2-----	Benzo(B)Fluoranthene	2.5	U
207-08-9-----	Benzo(K)Fluoranthene	2.3	U
192-97-2-----	Benzo(E)Pyrene	1.9	U
50-32-8-----	Benzo(A)Pyrene	2.3	U
198-55-0-----	Perylene	2.5	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	U
53-70-3-----	Dibenz(A,H)Anthracene	1.6	U
191-24-2-----	Benzo(G,H,I)Perylene	2.8	U

**4B
SEMIVOLATILE METHOD BLANK SUMMARY**

BLK02

Lab Name: ENSECO

Contract:

Lab Code: ENSECO **Case No.:** 21043 **SAS No.:** **SDG No.:**

Lab File ID: C5447

Lab Sample ID: BLK02

Instrument ID: 4500-C

Date Extracted: 02/25/92

Matrix: (soil/water) WATER

Date Analyzed: 03/27/92

Level: (low/med) LOW

Time Analyzed: 0550

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1 21043-04	21043-04	C5456	03/29/92
2 21043-06	21043-06	C5458	03/29/92
3 21043-06DL	21043-06DL	C5467	03/30/92
4 21043-06DU	21043-06DU	C5459	03/29/92
5 21043-06DUDL	21043-06DUDL	C5468	03/30/92
6 21043-06MS	21043-06MS	C5469	03/30/92
7 21043-06MSD	21043-06MSD	C5470	03/30/92

Comments:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK02

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 21043 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BLK02

Sample wt/vol: 4000 (g/ml) ML Lab File ID: C5447

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 02/25/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/27/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.125

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5.1	U
496-11-7-----	2,3-Dihydroindene	1.4	U
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	4.7	J
4565-32-6-----	Benzo(B)Thiophene	0.9	J
91-22-5-----	Quinoline	1.4	U
120-72-9-----	1H-Indole	2.5	U
91-57-6-----	2-Methylnaphthalene	3.0	
90-12-0-----	1-Methylnaphthalene	1.9	
92-52-4-----	Biphenyl	1.1	J *
208-96-8-----	Acenaphthylene	1.4	J
83-32-9-----	Acenaphthene	1.3	U
132-64-9-----	Dibenzofuran	1.2	*
86-73-7-----	Fluorene	1.0	U
132-65-0-----	Dibenzothiophene	1.1	U
85-01-8-----	Phenanthrene	3.1	
120-12-7-----	Anthracene	1.1	U
260-94-6-----	Acridine	2.9	U
86-74-8-----	Carbazole	1.9	U
206-44-0-----	Fluoranthene	1.4	U
129-00-0-----	Pyrene	1.4	U
56-55-3-----	Benzo(A)Anthracene	2.5	U
218-01-9-----	Chrysene	2.8	U
205-99-2-----	Benzo(B)Fluoranthene	2.5	U
207-08-9-----	Benzo(K)Fluoranthene	2.3	U
192-97-2-----	Benzo(E)Pyrene	1.9	U
50-32-8-----	Benzo(A)Pyrene	2.3	U
198-55-0-----	Perylene	2.5	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2.1	U
53-70-3-----	Dibenz(A,H)Anthracene	1.6	U
191-24-2-----	Benzo(G,H,I)Perylene	2.8	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 21043

SAS No.:

SDG No.:

Level: LOW

	EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #
1	21043-01	108	115	106
2	21043-01DL	108 *	132	71
3	21043-01DU	97	81	62
4	21043-01DUDL	102	86	71
5	21043-02	77	123	70
6	21043-02DL	D	D	D
7	21043-03	112 *	127	72
8	21043-03DL	D	D	D
9	21043-04	120 *	102	101
10	21043-06	133 *	120	51
11	21043-06DL	D	D	D
12	21043-06DU	132 *	166 *	46
13	21043-06DUDL	D	D	D
14	21043-01MS	93	107	54
15	21043-01MSD	112	116	78
16	21043-06MS	165 *	157	47
17	21043-06MSD	169 *	176 *	43
18	BLK01	110 *	114	117
19	BLK02	89	112	100

QC LIMITS
 S1 (NAP) = D8-NAPHTHALENE (14-108)
 S2 (FLU) = D10-FLUORENE (41-162)
 S3 (CHR) = D12-CHRYSENE (10-118)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 21043

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: 21043-01

LEVEL: LOW

Compound	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC
1H-Indene	9.92	18.3	27.5	93
Naphthalene	9.92	10.7	15.8	51
Quinoline	9.92	ND	22.7	NC
2-Methylnaphthalene	9.92	4.95	13.4	85
Fluorene	9.92	247	246	-10
Chrysene	9.92	1.89	6.29	44
Benzo(E)Pyrene	9.92	ND	1.09	11

Compound	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD
1H-Indene	9.92	28.1	99	6
Naphthalene	9.92	20.1	95	60
Quinoline	9.92	25.4	NC	NC
2-Methylnaphthalene	9.92	15.6	107	23
Fluorene	9.92	246	-10	NC
Chrysene	9.92	9.26	74	51
Benzo(E)Pyrene	9.92	1.39	14	24

Comments:

^{3C}
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 21043

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: 21043-06

LEVEL: LOW

Compound	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC
1H-Indene	10.0	609	398	NC
Naphthalene	10.0	89.9	93.6	37
Quinoline	10.0	37.1	44.8	76
2-Methylnaphthalene	10.0	15.3	35.7	202
Fluorene	10.0	58.8	78.2	192
Chrysene	10.2	ND	4.66	46
Benzo(E)Pyrene	10.0	ND	ND	8

Compound	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD
1H-Indene	9.92	385	NC	NC
Naphthalene	9.92	109	193	136
Quinoline	9.92	44.0	70	8
2-Methylnaphthalene	9.92	36.2	211	4
Fluorene	9.92	81.0	224	15
Chrysene	9.92	4.81	48	4
Benzo(E)Pyrene	9.92	ND	8	NC

Comments:

**4B
SEMIVOLATILE METHOD BLANK SUMMARY**

Lab Name: ENSECO

Contract:

BLK01

Lab Code: ENSECO **Case No.:** 21043 **SAS No.:** **SDG No.:**

Lab File ID: C5446

Lab Sample ID: BLK01

Instrument ID: 4500-C

Date Extracted: 02/24/92

Matrix: (soil/water) WATER

Date Analyzed: 03/27/92

Level: (low/med) LOW

Time Analyzed: 0456

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	21043-01	21043-01	C5450	03/29/92
2	21043-01DL	21043-01DL	C5462	03/29/92
3	21043-01DU	21043-01DU	C5451	03/29/92
4	21043-01DUDL	21043-01DUDL	C5463	03/30/92
5	21043-02	21043-02	C5454	03/29/92
6	21043-02DL	21043-02DL	C5465	03/30/92
7	21043-03	21043-03	C5455	03/29/92
8	21043-03DL	21043-03DL	C5466	03/30/92
9	21043-01MS	21043-01MS	C5452	03/29/92
10	21043-01MSD	21043-01MSD	C5453	03/29/92

Comments:

5B
SEMIVOLATILE ORGANIC GC/MS PAH

Lab Name: ENSECO

Contract No:

Lab Code: ENSECO

Case No: 21043

SAS No:

SDG No:

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS

SAMPLE ID	LAB FILE ID	DATE OF ANALYSIS	TIME OF ANALYSIS
40_PPB_PAH_STD	C5417	03/25/92	1931
1200_PPB_PAH_STD	C5418	03/25/92	2053
240_PPB_PAH_STD	C5419	03/25/92	2147
20_PPB_PAH_STD	C5420	03/25/92	2240
600_PPB_PAH_STD	C5421	03/25/92	2333

5B
SEMIVOLATILE ORGANIC GC/MS PAH

Lab Name: ENSECO

Contract No:

Lab Code: ENSECO

Case No: 21043

SAS No:

SDG No:

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS

SAMPLE ID	LAB FILE ID	DATE OF ANALYSIS	TIME OF ANALYSIS
40_PPB_PAH_STD	C5441	03/27/92	0002
BLK01	C5446	03/27/92	0456
BLK02	C5447	03/27/92	0550

5B
SEMIVOLATILE ORGANIC GC/MS PAH

Lab Name: ENSECO

Contract No:

Lab Code: ENSECO

Case No: 21043

SAS No:

SDG No:

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS

SAMPLE ID	LAB FILE ID	DATE OF ANALYSIS	TIME OF ANALYSIS
40_PPB_PAH_STD	C5449	03/29/92	0954
21043-01	C5450	03/29/92	1117
21043-01DU	C5451	03/29/92	1210
21043-01MS	C5452	03/29/92	1304
21043-01MSD	C5453	03/29/92	1357
21043-02	C5454	03/29/92	1451
21043-03	C5455	03/29/92	1544
21043-04	C5456	03/29/92	1637
21043-06	C5458	03/29/92	1823
21043-06DU	C5459	03/29/92	1917

5B
SEMIVOLATILE ORGANIC GC/MS PAH

Lab Name: ENSECO

Contract No:

Lab Code: ENSECO

Case No: 21043

SAS No:

SDG No:

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS

SAMPLE ID	LAB FILE ID	DATE OF ANALYSIS	TIME OF ANALYSIS
40 PPB PAH_STD	C5460	03/29/92	2056
21043-01DL	C5462	03/29/92	2353
21043-01DUDL	C5463	03/30/92	0046
21043-02DL	C5465	03/30/92	0232
21043-03DL	C5466	03/30/92	0326
21043-06DL	C5467	03/30/92	0420
21043-06DUDL	C5468	03/30/92	0513
21043-06MS	C5469	03/30/92	0607
21043-06MSD	C5470	03/30/92	0701

6B
INITIAL CALIBRATION DATA
PAH COMPOUNDS

Lab Name: ENSECO

Lab Code: ENSECO

Case No: 21043

Instrument ID: 4500-C

Calibration Date(s): 03/25/92

Maximum % RSD is 35%

Lab File ID: RRF 240= C5419	RRF 20= C5420		RRF 40= C5417		AVE RRF	%RSD
	RRF	600= C5421	RRF	1200= C5418		
2,3-Benzofuran	0.887	0.872	0.844	0.914	0.944	0.892 4.3
2,3-Dihydroindene	0.965	0.924	0.886	0.954	0.984	0.943 4.1
1H-Indene	0.772	0.722	0.721	0.828	0.868	0.782 8.3
Naphthalene	1.759	1.666	1.628	1.718	1.657	1.686 3.1
Benzo(B)Thiophene	1.184	1.108	1.174	1.247	1.282	1.199 5.6
Quinoline	0.509	0.525	0.599	0.688	0.742	0.613 16.5
1H-Indole	0.500	0.502	0.686	0.802	0.859	0.670 24.8
2-Methylnaphthalene	0.729	0.668	0.705	0.738	0.778	0.724 5.6
1-Methylnaphthalene	0.805	0.726	0.776	0.814	0.849	0.794 5.8
Biphenyl	1.024	0.959	1.054	1.108	1.135	1.056 6.6
Acenaphthylene	1.033	0.907	1.130	1.240	1.311	1.124 14.3
Acenaphthene	0.845	0.756	0.873	0.900	0.937	0.862 7.9
Dibenzofuran	1.023	0.978	1.119	1.156	1.213	1.098 8.8
Fluorene	0.838	0.784	0.924	0.961	1.009	0.903 10.1
Dibenzothiophene	0.779	0.763	0.845	0.837	0.859	0.817 5.2
Phenanthrone	1.038	0.959	0.997	0.976	0.993	0.993 3.0
Anthracene	0.697	0.614	0.783	0.852	0.890	0.767 14.7
Acridine	0.363	0.359	0.437	0.504	0.552	0.443 19.3
Carbazole	0.494	0.495	0.623	0.689	0.724	0.605 17.7
Fluoranthene	0.754	0.731	0.850	0.855	0.885	0.815 8.3
Pyrene	0.981	0.946	1.018	0.894	0.923	0.952 5.1
Benzo(A)Anthracene	0.994	1.043	1.188	1.137	1.193	1.111 8.0
Chrysene	1.245	1.227	1.283	1.242	1.284	1.256 2.1
Benzo(B)Fluoranthene	1.078	1.135	1.210	1.204	1.198	1.165 4.9
Benzo(K)Fluoranthene	1.042	0.951	1.157	1.124	1.080	1.071 7.5
Benzo(E)Pyrene	1.001	1.030	1.059	1.006	1.004	1.020 2.4
Benzo(A)Pyrene	0.983	0.700	1.015	0.930	0.944	0.914 13.6
Perylene	0.626	0.648	0.691	0.731	0.752	0.690 7.7
Indeno(1,2,3-CD)Pyrene	0.790	0.836	0.916	0.889	0.915	0.869 6.3
Dibenz(A,H)Anthracene	0.732	0.704	0.799	0.805	0.814	0.771 6.4
Benzo(G,H,I)Perylene	0.853	0.857	0.871	0.842	0.850	0.855 1.3
-----	-----	-----	-----	-----	-----	-----
D8-Naphthalene	1.349	1.244	1.294	1.385	1.387	1.332 4.6
D10-Flourene	0.606	0.584	0.670	0.680	0.713	0.651 8.3
D12-Chrysene	1.051	1.189	1.075	1.040	1.084	1.088 5.4

7B
CONTINUING CALIBRATION DATA
PAH COMPOUNDS

Lab Name: ENSECO Lab Code: ENSECO Case No: 21043
 Instrument ID: 4500-C Calibration Date(s): 03/27/92 Time: 0002
 Lab ID: C5441 Initial Calibration Date: 03/25/92

Maximum %D is 35%

COMPOUND	INITIAL AVE RRF	40 PPB RRF	%D
2,3-Benzofuran	0.892	0.899	-0.8
2,3-Dihydroindene	0.943	0.768	18.6
1H-Indene	0.782	0.699	10.6
Naphthalene	1.686	1.667	1.1
Benzo(B)Thiophene	1.199	1.069	10.8
Quinoline	0.613	0.558	9.0
1H-Indole	0.670	0.487	27.3
2-Methylnaphthalene	0.724	0.621	14.2
1-Methylnaphthalene	0.794	0.696	12.3
Biphenyl	1.056	0.910	13.8
Acenaphthylene	1.124	0.919	18.2
Acenaphthene	0.862	0.735	14.7
Dibenzofuran	1.098	0.948	13.7
Fluorene	0.903	0.751	16.8
Dibenzothiophene	0.817	0.747	8.6
Phenanthrene	0.993	0.867	12.7
Anthracene	0.767	0.596	22.3
Acridine	0.443	0.444	-0.2
Carbazole	0.605	0.540	10.7
Fluoranthene	0.815	0.679	16.7
Pyrene	0.952	0.895	6.0
Benzo(A)Anthracene	1.111	0.889	20.0
Chrysene	1.256	0.992	21.0
Benzo(B)Fluoranthene	1.165	0.986	15.4
Benzo(K)Fluoranthene	1.071	0.905	15.5
Benzo(E)Pyrene	1.020	0.923	9.5
Benzo(A)Pyrene	0.914	0.837	8.4
Perylene	0.690	0.602	12.8
Indeno(1,2,3-CD)Pyrene	0.869	0.768	11.6
Dibenz(A,H)Anthracene	0.771	0.703	8.8
Benzo(G,H,I)Perylene	0.855	0.729	14.7
=====	=====	=====	=====
D8-Naphthalene	1.332	1.299	2.5
D10-Flourene	0.651	0.627	3.7
D12-Chrysene	1.088	0.882	18.9

7B
CONTINUING CALIBRATION DATA
PAH COMPOUNDS

Lab Name: ENSECO

Lab Code: ENSECO

Case No: 21043

Instrument ID: 4500-C

Calibration Date(s): 03/29/92

Time: 0954

Lab ID: C5449

Initial Calibration Date: 03/25/92

Maximum %D is 35%

COMPOUND	INITIAL AVE RRF	40 PPB RRF	%D
2,3-Benzofuran	0.892	0.941	-5.5
2,3-Dihydroindene	0.943	0.897	4.9
1H-Indene	0.782	0.687	12.1
Naphthalene	1.686	1.602	5.0
Benzo(B)Thiophene	1.199	1.146	4.4
Quinoline	0.613	0.429	30.0
1H-Indole	0.670	0.483	27.9
2-Methylnaphthalene	0.724	0.667	7.9
1-Methylnaphthalene	0.794	0.752	5.3
Biphenyl	1.056	0.996	5.7
Acenaphthylene	1.124	0.931	17.2
Acenaphthene	0.862	0.800	7.2
Dibenzofuran	1.098	1.025	6.6
Fluorene	0.903	0.727	19.5
Dibenzothiophene	0.817	0.822	-0.6
Phenanthrene	0.993	0.981	1.2
Anthracene	0.767	0.718	6.4
Acridine	0.443	0.377	14.9
Carbazole	0.605	0.492	18.7
Fluoranthene	0.815	0.701	14.0
Pyrene	0.952	0.903	5.1
Benzo(A)Anthracene	1.111	0.892	19.7
Chrysene	1.256	1.181	6.0
Benzo(B)Fluoranthene	1.165	1.030	11.6
Benzo(K)Fluoranthene	1.071	0.989	7.7
Benzo(E)Pyrene	1.020	0.997	2.3
Benzo(A)Pyrene	0.914	0.664	27.4
Perylene	0.690	0.601	12.9
Indeno(1,2,3-CD)Pyrene	0.869	0.612	29.6
Dibenz(A,H)Anthracene	0.771	0.507	34.2
Benzo(G,H,I)Perylene	0.855	0.633	26.0
===== D8-Naphthalene	1.332	1.365	-2.5
D10-Flourene	0.651	0.668	-2.6
D12-Chrysene	1.088	1.048	3.7

7B
CONTINUING CALIBRATION DATA
PAH COMPOUNDS

Lab Name: ENSECO

Lab Code: ENSECO

Case No: 21043

Instrument ID: 4500-C

Calibration Date(s): 03/29/92

Time: 2056

Lab ID: C5460

Initial Calibration Date: 03/25/92

Maximum %D is 35%

COMPOUND	INITIAL AVE RRF	40 PPB RRF	%D
2,3-Benzofuran	0.892	0.805	9.8
2,3-Dihydroindene	0.943	0.817	13.4
1H-Indene	0.782	0.659	15.7
Naphthalene	1.686	1.347	20.1
Benzo(B)Thiophene	1.199	0.945	21.2
Quinoline	0.613	0.514	16.2
1H-Indole	0.670	0.497	25.8
2-Methylnaphthalene	0.724	0.541	25.3
1-Methylnaphthalene	0.794	0.631	20.5
Biphenyl	1.056	0.836	20.8
Acenaphthylene	1.124	0.768	31.7
Acenaphthene	0.862	0.642	25.5
Dibenzofuran	1.098	0.839	23.6
Fluorene	0.903	0.686	24.0
Dibenzothiophene	0.817	0.829	-1.5
Phenanthrene	0.993	1.005	-1.2
Anthracene	0.767	0.843	-9.9
Acridine	0.443	0.597	-34.8
Carbazole	0.605	0.686	-13.4
Fluoranthene	0.815	0.916	-12.4
Pyrene	0.952	1.048	-10.1
Benzo(A)Anthracene	1.111	1.040	6.4
Chrysene	1.256	1.168	7.0
Benzo(B)Fluoranthene	1.165	0.918	21.2
Benzo(K)Fluoranthene	1.071	0.867	19.0
Benzo(E)Pyrene	1.020	0.966	5.3
Benzo(A)Pyrene	0.914	0.814	10.9
Perylene	0.690	0.524	24.1
Indeno(1,2,3-CD)Pyrene	0.869	0.647	25.5
Dibenz(A,H)Anthracene	0.771	0.577	25.2
Benzo(G,H,I)Perylene	0.855	0.648	24.2
-----	-----	-----	-----
D8-Naphthalene	1.332	1.084	18.6
D10-Flourene	0.651	0.571	12.3
D12-Chrysene	1.088	1.103	-1.4

8C
SEMICVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No: 21043

SAS No.:

SDG No:

Lab File ID (Standard): C5441

Date Analyzed: 03/27/92

Instrument ID: 4500-C

Time Analyzed: 0002

	IS#1 (ACN) AREA #	IS#2 (PHN) AREA #	IS#3 (BAP) AREA #
12 HOUR STD	188000	210000	127000
UPPER LIMIT	376000	420000	254000
LOWER LIMIT	94000	105000	63500
SAMPLE NO.			
BLK01	134000	167000	73700
BLK02	134000	174000	97400

IS#1 (ACN) = D10-ACENAPHTHENE

UPPER LIMIT = + 100%

IS#2 (PHN) = D10-PHENANTHRENE

of internal standard area

IS#3 (BAP) = D12-BENZO(A)PYRENE

LOWER LIMIT = - 50%

of internal standard area

Column used to flag internal standard area values with an asterisk

8C
SEMICVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No: 21043

SAS No.:

SDG No:

Lab File ID (Standard): C5449

Date Analyzed: 03/29/92

Instrument ID: 4500-C

Time Analyzed: 0954

	IS#1 (ACN) AREA #	IS#2 (PHN) AREA #	IS#3 (BAP) AREA #
12 HOUR STD	337000	386000	189000
UPPER LIMIT	674000	772000	378000
LOWER LIMIT	168000	193000	94500
SAMPLE NO.			
21043-01	382000	513000	196000
21043-01DU	429000	589000	307000
21043-02	513000	598000	213000
21043-03	359000	497000	211000
21043-04	301000	405000	187000
21043-06	315000	545000	208000
21043-06DU	327000	566000	191000
21043-01MS	370000	497000	216000
21043-01MSD	405000	553000	218000

IS#1 (ACN) = D10-ACENAPHTHENE
IS#2 (PHN) = D10-PHENANTHRENE
IS#3 (BAP) = D12-BENZO(A)PYRENE

UPPER LIMIT = + 100%
 of internal standard area
LOWER LIMIT = - 50%
 of internal standard area

Column used to flag internal standard area values with an asterisk

8C
SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No: 21043

SAS No.:

SDG No:

Lab File ID (Standard): C5460

Date Analyzed: 03/29/92

Instrument ID: 4500-C

Time Analyzed: 2056

	IS#1 (ACN) AREA #	IS#2 (PHN) AREA #	IS#3 (BAP) AREA #
12 HOUR STD	591000	565000	334000
UPPER LIMIT	1180000	1130000	668000
LOWER LIMIT	296000	298000	167000
SAMPLE NO.			
21043-01DL	497000	627000	344000
21043-01DUDL	473000	569000	291000
21043-02DL	382000	438000	214000
21043-03DL	355000	392000	241000
21043-06DL	362000	411000	234000
21043-06DUDL	368000	417000	229000
21043-06MS	604000	861000	429000
21043-06MSD	560000	786000	450000

IS#1 (ACN) = D10-ACENAPHTHENE
 IS#2 (PHN) = D10-PHENANTHRENE
 IS#3 (BAP) = D12-BENZO(A)PYRENE

UPPER LIMIT = + 100%
 of internal standard area
 LOWER LIMIT = - 50%
 of internal standard area

Column used to flag internal standard area values with an asterisk



CASE NARRATIVE
FOR
City of St. Louis Park
September 08, 1992
Enseco - RMAL Project Number 023581

Introduction

Ten aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on June 30, 1992. The samples were logged in under RMAL project number 023581. Sample GAC-SLP15FBD-062992 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for medium level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

23581-003MS matrix spike recoveries for Fluorene was outside QC limits. Since good recovery was achieved for all other spike components (between the range of 50-100%), and it was noted that 023581-0003 had Fluorene at a concentration above the matrix spike level, quantitation was checked and no further action was taken.

Samples 023581-01 and 03, show target compounds above the upper calibration range. The samples were analyzed and reported at dilutions.

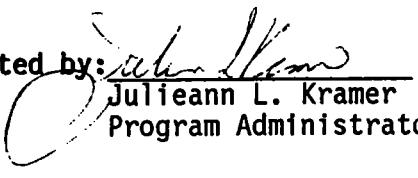
The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

Case Narrative - RMAL #023581
September 08, 1992
Page Two

Sample 023581-01DU durring extraction was spilled and approximately 1/2 of the extraction volume was lost. Within extraction holding times 023581-01DU REPREP was initiated. Both -01DU results were within QC limits, and results reported.

Samples 023581-01 thru 03, 01FB, 01DU, 01DURE, 02MS, 02SD, 03MS and the associated method blank for 07/02/92 extraction (BLK01), and the associated method blank for 07/03/92 extraction (BLK02), and the associated method blank for 07/05/92 extraction (BLK03) show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: 
Julieann L. Kramer
Program Administrator

Date: 9-11-92

Approved by: 
Mark Dymerski
Technical Manager

Date: 9-11-92

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 023581	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level Prep - PAH/SIM by GC/MS Low Level	N
0003	B	Polynuclear Aromatic Hydrocarbons, SIM Low Level Prep - PAH/SIM by GC/MS Low Level	N
0004	C	Prep - PAH/SIM by GC/MS Low Level	N

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Received Time	Received Date
023581-0001-SA	GAC-SLP15F-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0001-DU	GACSLP15FD-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0001-FB	GAC-SLP15FB-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0002-SA	GAC-SLP15T-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0002-DU	GAC-SLP15TD-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0002-MS	GAC-SLP15TMS-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0002-SD	GAC-SLP15TMSD-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0003-SA	GAC-SLP15F-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0003-MS	GAC-SLP15MS-062992	AQUEOUS	29 JUN 92		30 JUN 92
023581-0004-SA	GAC-SLP15FBD-062992	AQUEOUS	29 JUN 92		30 JUN 92



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING				SHIPPING DETAILS		
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>B4R</i>	METHOD OF SHIPMENT <i>FED EX</i>	AIRBILL NUMBER <i>2103410421</i>
				<i>R77AL</i>	RECEIVED FOR LAB ENSECO PROJECT NUMBER <i>23583</i>	SIGNED <i>Michael J. Pelle</i> DATE/TIME <i>6/20/92</i>



**Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171**

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>BFB</i>		
				METHOD OF SHIPMENT <i>FED EX</i>	AIRBILL NUMBER <i>2103420421</i>	
				RECEIVED FOR LAB <i>RMAL</i>	SIGNED <i>Michael J. Reith</i>	DATE/TIME <i>6/30/93</i>
				ENSECO PROJECT NUMBER <i>23581</i>		<i>8:30</i>



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING				SHIPPING DETAILS		
REINQUISITIONED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>B7B</i>		
				METHOD OF SHIPMENT <i>FED EX</i>	AIRBILL NUMBER <i>2103420421</i>	
				RECEIVED FOR LAB <i>RMA/L</i>	SIGNER <i>Michael J. Reiter</i>	DATE/TIME <i>6/30/93</i>
				ENSECO PROJECT NUMBER <i>23581</i>		<i>8:30</i>



A Corning Company

Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY



**Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171**

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>BFB</i>
				METHOD OF SHIPMENT <i>FED EX</i>
				AIRBILL NUMBER <i>2103420 421</i>
				RECEIVED FOR LAB <i>RMA2</i>
				SIGNED <i>Michael J. Pette</i>
				DATE/TIME <i>6/30/92</i>
				ENSECO PROJECT NUMBER <i>23581</i>
				TIME <i>8:30</i>

SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RMAL No: 23581

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-01

GAC-SLP15F-062992

SDG No.:

Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 23581

SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 23581-01

Sample wt/vol: 4200 (g/mL) ML

Lab File ID: C6030

Level: (low/med) LOW

Date Received: 06/30/92

% Moisture: decanted: (Y/N) N

Date Extracted: 07/03/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 08/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.476

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

Q

CAS NO.	COMPOUND			
271-89-6-----	2,3-Dibenzofuran	20	U	
496-11-7-----	2,3-Dihydroindene	150		
95-13-6-----	1H-Indene	10		
91-20-3-----	Naphthalene	5	BJ	
4565-32-6-----	Benzo(B)Thiophene	24		
91-22-5-----	Quinoline	5	U	
120-72-9-----	1H-Indole	4	J	
91-57-6-----	2-Methylnaphthalene	3	U	
90-12-0-----	1-Methylnaphthalene	6	U	
92-52-4-----	Biphenyl	6	BJ	
208-96-8-----	Acenaphthylene	140		
83-32-9-----	Acenaphthene	430		
132-64-9-----	Dibenzofuran	36		
86-73-7-----	Fluorene	79		
132-65-0-----	Dibenzothiophene	6		
85-01-8-----	Phenanthrene	7	B	
120-12-7-----	Anthracene	5		
260-94-6-----	Acridine	7	JR	
86-74-8-----	Carbazole	2	J	
206-44-0-----	Fluoranthene	73	B	
129-00-0-----	Pyrene	60	B	
56-55-3-----	Benzo(A)Anthracene	3	J	
218-01-9-----	Chrysene	2	J	
205-99-2-----	Benzo(B)Fluoranthene	10	U	
207-08-9-----	Benzo(K)Fluoranthene	9	U	
192-97-2-----	Benzo(E)Pyrene	7	U	
50-32-8-----	Benzo(A)Pyrene	9	U	
198-55-0-----	Perylene	10	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	8	U	
53-70-3-----	Dibenz(A,H)Anthracene	6	U	
191-24-2-----	Benzo(G,H,I)Perylene	10	U	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-01DU

GAC-SLP15FD-062992

SDG No.:

Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 23581-01DU
Sample wt/vol: 4200 (g/mL) ML		Lab File ID: C6031
Level: (low/med) LOW		Date Received: 06/30/92
% Moisture: decanted: (Y/N) N		Date Extracted: 07/03/92
Concentrated Extract Volume: 500(uL)		Date Analyzed: 08/12/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.476
GPC Cleanup: (Y/N) N	pH: 7.0	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg)	ng/L	Q
---------	----------	---	------	---

271-89-6-----	2,3-Dibenzofuran	20	U
496-11-7-----	2,3-Dihydroindene	80	
95-13-6-----	1H-Indene	5	R
91-20-3-----	Naphthalene	25	U
4565-32-6-----	Benzo(B)Thiophene	12	R
91-22-5-----	Quinoline	5	U
120-72-9-----	1H-Indole	10	U
91-57-6-----	2-Methylnaphthalene	3	U
90-12-0-----	1-Methylnaphthalene	6	U
92-52-4-----	Biphenyl	16	U
208-96-8-----	Acenaphthylene	68	
83-32-9-----	Acenaphthene	210	
132-64-9-----	Dibenzofuran	18	
86-73-7-----	Fluorene	43	
132-65-0-----	Dibenzothiophene	4	U
85-01-8-----	Phenanthrene	4	BJ
120-12-7-----	Anthracene	4	U
260-94-6-----	Acridine	11	U
86-74-8-----	Carbazole	7	U
206-44-0-----	Fluoranthene	37	B
129-00-0-----	Pyrene	32	B
56-55-3-----	Benzo(A)Anthracene	10	U
218-01-9-----	Chrysene	10	U
205-99-2-----	Benzo(B)Fluoranthene	10	U
207-08-9-----	Benzo(K)Fluoranthene	9	U
192-97-2-----	Benzo(E)Pyrene	7	U
50-32-8-----	Benzo(A)Pyrene	9	U
198-55-0-----	Perylene	10	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3-----	Dibenz(A,H)Anthracene	6	U
191-24-2-----	Benzo(G,H,I)Perylene	10	U

IX
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Name: ENSECO	Contract:	23581-01DURE	
Lab Code: ENSECO	Case No.: 23581	SAS No.:	GACSLP15FD-062992
SDG No.:			
Matrix: (soil/water) WATER		Lab Sample ID: 23581-01DURE	
Sample wt/vol:	4200 (g/mL) ML	Lab File ID: C6034	
Level:	(low/med) LOW	Date Received: 06/30/92	
% Moisture:	decanted: (Y/N) N	Date Extracted: 07/05/92	
Concentrated Extract Volume:	500(uL)	Date Analyzed: 08/12/92	
Injection Volume:	2.0(uL)	Dilution Factor: 0.476	
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q	
CAS NO.	COMPOUND		
271-89-6-----	2,3-Dibenzofuran	20	U
496-11-7-----	2,3-Dihydroindene	29	
95-13-6-----	1H-Indene	3	U
91-20-3-----	Naphthalene	25	U
4565-32-6-----	Benzo(B)Thiophene	11	R
91-22-5-----	Quinoline	5	U
120-72-9-----	1H-Indole	10	U
91-57-6-----	2-Methylnaphthalene	3	U
90-12-0-----	1-Methylnaphthalene	6	U
92-52-4-----	Biphenyl	16	U
208-96-8-----	Acenaphthylene	89	
83-32-9-----	Acenaphthene	360	
132-64-9-----	Dibenzofuran	16	
86-73-7-----	Fluorene	18	
132-65-0-----	Dibenzothiophene	4	U
85-01-8-----	Phenanthrene	5	B
120-12-7-----	Anthracene	4	U
260-94-6-----	Acridine	6	J
86-74-8-----	Carbazole	7	U
206-44-0-----	Fluoranthene	69	
129-00-0-----	Pyrene	42	
56-55-3-----	Benzo(A)Anthracene	10	U
218-01-9-----	Chrysene	10	U
205-99-2-----	Benzo(B)Fluoranthene	10	U
207-08-9-----	Benzo(K)Fluoranthene	9	U
192-97-2-----	Benzo(E)Pyrene	7	U
50-32-8-----	Benzo(A)Pyrene	9	U
198-55-0-----	Perylene	10	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3-----	Dibenz(A,H)Anthracene	6	U
191-24-2-----	Benzo(G,H,I)Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-01FB

GAC-SLP15FB-062992

SDG No.:

Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 23581-01FB
Sample wt/vol: 4200 (g/mL) ML		Lab File ID: C6032
Level: (low/med) LOW		Date Received: 06/30/92
% Moisture: decanted: (Y/N) N		Date Extracted: 07/03/92
Concentrated Extract Volume: 500(uL)		Date Analyzed: 08/12/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.119
GPC Cleanup: (Y/N) N	pH: 7.0	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	Q
271-89-6-----	2,3-Dibenzofuran	20	U
496-11-7-----	2,3-Dihydroindene	5	J
95-13-6-----	1H-Indene	3	U
91-20-3-----	Naphthalene	17	BJ
4565-32-6-----	Benzo(B)Thiophene	3	U
91-22-5-----	Quinoline	5	U
120-72-9-----	1H-Indole	10	U
91-57-6-----	2-Methylnaphthalene	11	B
90-12-0-----	1-Methylnaphthalene	6	J
92-52-4-----	Biphenyl	16	U
208-96-8-----	Acenaphthylene	5	U
83-32-9-----	Acenaphthene	5	U
132-64-9-----	Dibenzofuran	4	R
86-73-7-----	Fluorene	5	
132-65-0-----	Dibenzothiophene	4	U
85-01-8-----	Phenanthrene	25	B
120-12-7-----	Anthracene	4	U
260-94-6-----	Acridine	11	U
86-74-8-----	Carbazole	7	U
206-44-0-----	Fluoranthene	7	B
129-00-0-----	Pyrene	6	B
56-55-3-----	Benzo(A) Anthracene	10	U
218-01-9-----	Chrysene	10	U
205-99-2-----	Benzo(B) Fluoranthene	10	U
207-08-9-----	Benzo(K) Fluoranthene	9	U
192-97-2-----	Benzo(E) Pyrene	7	U
50-32-8-----	Benzo(A) Pyrene	9	U
198-55-0-----	Perylene	10	U
193-39-5-----	Indeno(1,2,3-CD) Pyrene	8	U
53-70-3-----	Dibenz(A,H) Anthracene	6	U
191-24-2-----	Benzo(G,H,I) Perylene	10	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-02

GAC-SLP15T-062992

Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER	Lab Sample ID: 23581-02	
Sample wt/vol: 4200 (g/mL) ML	Lab File ID: C6028	
Level: (low/med) LOW	Date Received: 06/30/92	
% Moisture: decanted: (Y/N) N	Date Extracted: 07/05/92	
Concentrated Extract Volume: 500(uL)	Date Analyzed: 08/12/92	
Injection Volume: 2.0(uL)	Dilution Factor: 0.119	
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q

271-89-6-----	2,3-Dibenzofuran	5	U
496-11-7-----	2,3-Dihydroindene	1	J
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	2	J
4565-32-6-----	Benzo(B)Thiophene	0.9	U
91-22-5-----	Quinoline	1	U
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	1	
90-12-0-----	1-Methylnaphthalene	2	U
92-52-4-----	Biphenyl	4	U
208-96-8-----	Acenaphthylene	1	U
83-32-9-----	Acenaphthene	1	U
132-64-9-----	Dibenzofuran	1	U
86-73-7-----	Fluorene	1	U
132-65-0-----	Dibenzothiophene	1	U
85-01-8-----	Phenanthrene	3	B
120-12-7-----	Anthracene	1	U
260-94-6-----	Acridine	3	U
86-74-8-----	Carbazole	2	U
206-44-0-----	Fluoranthene	1	J
129-00-0-----	Pyrene	1	J
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-02DU

GAC-SLP15TD-062992

SDG No.:

Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 23581

SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 23581-02DU

Sample wt/vol: 4200 (g/mL) ML

Lab File ID: C6035

Level: (low/med) LOW

Date Received: 06/30/92

% Moisture: decanted: (Y/N) N

Date Extracted: 07/05/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 08/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

Q

CAS NO.	COMPOUND			
271-89-6-----	2,3-Dibenzofuran	5	U	
496-11-7-----	2,3-Dihydroindene	1	U	
95-13-6-----	1H-Indene	0.9	U	
91-20-3-----	Naphthalene	2	J	
4565-32-6-----	Benzo(B)Thiophene	0.9	U	
91-22-5-----	Quinoline	1	U	
120-72-9-----	1H-Indole	2	U	
91-57-6-----	2-Methylnaphthalene	1		
90-12-0-----	1-Methylnaphthalene	2	U	
92-52-4-----	Biphenyl	4	U	
208-96-8-----	Acenaphthylene	1	U	
83-32-9-----	Acenaphthene	1	U	
132-64-9-----	Dibenzofuran	1	U	
86-73-7-----	Fluorene	1	U	
132-65-0-----	Dibenzothiophene	1	U	
85-01-8-----	Phenanthrene	3	B	
120-12-7-----	Anthracene	1	U	
260-94-6-----	Acridine	3	U	
86-74-8-----	Carbazole	2	U	
206-44-0-----	Fluoranthene	1	J	
129-00-0-----	Pyrene	1	J	
56-55-3-----	Benzo(A)Anthracene	2	U	
218-01-9-----	Chrysene	3	U	
205-99-2-----	Benzo(B)Fluoranthene	2	U	
207-08-9-----	Benzo(K)Fluoranthene	2	U	
192-97-2-----	Benzo(E)Pyrene	2	U	
50-32-8-----	Benzo(A)Pyrene	2	U	
198-55-0-----	Perylene	2	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U	
53-70-3-----	Dibenz(A,H)Anthracene	2	U	
191-24-2-----	Benzo(G,H,I)Perylene	1	J	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-03

GAC-SLP15F-062992

SDG No.:

1 Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 23581-03
Sample wt/vol: 4200 (g/mL) ML		Lab File ID: C6016
Level: (low/med) LOW		Date Received: 06/30/92
% Moisture: decanted: (Y/N) N		Date Extracted: 07/02/92
Concentrated Extract Volume: 2000(uL)		Date Analyzed: 08/11/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.476
GPC Cleanup: (Y/N) N pH: 7.0		

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg)	ng/L	Q
271-89-6-----	2,3-Dibenzofuran		78	U
496-11-7-----	2,3-Dihydroindene		980	B
95-13-6-----	1H-Indene		56	
91-20-3-----	Naphthalene		12	BJ
4565-32-6-----	Benzo(B)Thiophene		150	
91-22-5-----	Quinoline		21	U
120-72-9-----	1H-Indole		21	J
91-57-6-----	2-Methylnaphthalene		14	U
90-12-0-----	1-Methylnaphthalene		25	U
92-52-4-----	Biphenyl		52	BJ
208-96-8-----	Acenaphthylene		640	
83-32-9-----	Acenaphthene		1900	B
132-64-9-----	Dibenzofuran		190	B
86-73-7-----	Fluorene		500	B
132-65-0-----	Dibenzothiophene		37	
85-01-8-----	Phenanthrene		33	B
120-12-7-----	Anthracene		25	B
260-94-6-----	Acridine		27	J
86-74-8-----	Carbazole		12	J
206-44-0-----	Fluoranthene		290	B
129-00-0-----	Pyrene		260	B
56-55-3-----	Benzo(A)Anthracene		6	J
218-01-9-----	Chrysene		3	J
205-99-2-----	Benzo(B)Fluoranthene		38	U
207-08-9-----	Benzo(K)Fluoranthene		34	U
192-97-2-----	Benzo(E)Pyrene		28	U
50-32-8-----	Benzo(A)Pyrene		34	U
198-55-0-----	Perylene		38	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene		32	U
53-70-3-----	Dibenz(A,H)Anthracene		25	U
191-24-2-----	Benzo(G,H,I)Perylene		42	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Name: ENSECO	Contract:	BLK01	
Lab Code: ENSECO	Case No.: 23581	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID:	BL070292
Sample wt/vol: 4000 (g/mL) ML		Lab File ID:	C6014
Level: (low/med) LOW		Date Received:	
% Moisture:	decanted: (Y/N) N	Date Extracted:	07/02/92
Concentrated Extract Volume:	2000(uL)	Date Analyzed:	08/11/92
Injection Volume:	2.0(uL)	Dilution Factor:	0.125
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q	

CAS NO.	COMPOUND	Q	U
271-89-6-----	2,3-Dibenzofuran	20	U
496-11-7-----	2,3-Dihydroindene	1	J
95-13-6-----	1H-Indene	4	U
91-20-3-----	Naphthalene	4	J
4565-32-6-----	Benzo(B)Thiophene	4	U
91-22-5-----	Quinoline	6	U
120-72-9-----	1H-Indole	10	U
91-57-6-----	2-Methylnaphthalene	3	J
90-12-0-----	1-Methylnaphthalene	6	U
92-52-4-----	Biphenyl	3	J
208-96-8-----	Acenaphthylene	6	U
83-32-9-----	Acenaphthene	0.6	J
132-64-9-----	Dibenzofuran	1	J
86-73-7-----	Fluorene	1	J
132-65-0-----	Dibenzothiophene	4	U
85-01-8-----	Phenanthrene	7	
120-12-7-----	Anthracene	0.6	J
260-94-6-----	Acridine	12	U
86-74-8-----	Carbazole	8	U
206-44-0-----	Fluoranthene	2	J
129-00-0-----	Pyrene	3	J
56-55-3-----	Benzo(A)Anthracene	10	U
218-01-9-----	Chrysene	11	U
205-99-2-----	Benzo(B)Fluoranthene	10	U
207-08-9-----	Benzo(K)Fluoranthene	9	U
192-97-2-----	Benzo(E)Pyrene	8	U
50-32-8-----	Benzo(A)Pyrene	9	U
198-55-0-----	Perylene	10	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	8	U
53-70-3-----	Dibenz(A,H)Anthracene	6	U
191-24-2-----	Benzo(G,H,I)Perylene	11	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK02

Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER		SDG No.:
Sample wt/vol: 4000 (g/mL) ML		Lab Sample ID: BL081292
Level: (low/med) LOW		Lab File ID: C6029
% Moisture:	decanted: (Y/N) N	Date Received:
Concentrated Extract Volume:	500(uL)	Date Extracted: 07/03/92
Injection Volume:	2.0(uL)	Date Analyzed: 08/12/92
GPC Cleanup: (Y/N) N	pH: 7.0	Dilution Factor: 0.125

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L	
271-89-6-----	2,3-Dibenzofuran	5	U
496-11-7-----	2,3-Dihydroindene	1	U
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	2	J
4565-32-6-----	Benzo(B)Thiophene	0.9	U
91-22-5-----	Quinoline	1	U
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	1	
90-12-0-----	1-Methylnaphthalene	2	U
92-52-4-----	Biphenyl	1	J
208-96-8-----	Acenaphthylene	1	U
83-32-9-----	Acenaphthene	1	U
132-64-9-----	Dibenzofuran	1	U
86-73-7-----	Fluorene	1	U
132-65-0-----	Dibenzothiophene	1	U
85-01-8-----	Phenanthrene	3	
120-12-7-----	Anthracene	1	U
260-94-6-----	Acridine	3	U
86-74-8-----	Carbazole	2	U
206-44-0-----	Fluoranthene	1	J
129-00-0-----	Pyrene	2	R
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	1	JR

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK03

Name: ENSECO

Contract:

Lab Code: ENSECO	Case No.: 23581	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: BL070592	
Sample wt/vol: 4000 (g/mL) ML		Lab File ID: C6033	
Level: (low/med) LOW		Date Received:	
% Moisture:	decanted: (Y/N) N	Date Extracted: 07/05/92	
Concentrated Extract Volume:	500(uL)	Date Analyzed: 08/12/92	
Injection Volume:	2.0(uL)	Dilution Factor:	0.125
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q	

CAS NO.	COMPOUND		
271-89-6-----	2,3-Dibenzofuran	5	U
496-11-7-----	2,3-Dihydroindene	1	U
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	6	U
4565-32-6-----	Benzo(B)Thiophene	0.9	U
91-22-5-----	Quinoline	1	U
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	0.9	U
90-12-0-----	1-Methylnaphthalene	2	U
92-52-4-----	Biphenyl	4	U
208-96-8-----	Acenaphthylene	1	U
83-32-9-----	Acenaphthene	1	U
132-64-9-----	Dibenzofuran	1	U
86-73-7-----	Fluorene	1	U
132-65-0-----	Dibenzothiophene	1	U
85-01-8-----	Phenanthrene	2	U
120-12-7-----	Anthracene	1	U
260-94-6-----	Acridine	3	U
86-74-8-----	Carbazole	2	U
206-44-0-----	Fluoranthene	1	U
129-00-0-----	Pyrene	1	U
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-02MS

GAC-SLP15TMS-062992

SDG No.:

Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 23581

SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 23581-02MS

Sample wt/vol: 4200 (g/mL) ML

Lab File ID: C6036

Level: (low/med) LOW

Date Received: 06/30/91

% Moisture: decanted: (Y/N) N

Date Extracted: 07/05/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 08/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

Q

CAS NO.	COMPOUND			
271-89-6-----	2,3-Dibenzofuran	5	U	
496-11-7-----	2,3-Dihydroindene	1	U	
95-13-6-----	1H-Indene	7		
91-20-3-----	Naphthalene	9		
4565-32-6-----	Benzo(B)Thiophene	0.9	U	
91-22-5-----	Quinoline	10		
120-72-9-----	1H-Indole	2	U	
91-57-6-----	2-Methylnaphthalene	8		
90-12-0-----	1-Methylnaphthalene	2	U	
92-52-4-----	Biphenyl	1	J	
208-96-8-----	Acenaphthylene	1	U	
83-32-9-----	Acenaphthene	1	U	
132-64-9-----	Dibenzofuran	1	U	
86-73-7-----	Fluorene	8		
132-65-0-----	Dibenzothiophene	1	U	
85-01-8-----	Phenanthrene	3	B	
120-12-7-----	Anthracene	1	U	
260-94-6-----	Acridine	3	U	
86-74-8-----	Carbazole	2	U	
206-44-0-----	Fluoranthene	1	J	
129-00-0-----	Pyrene	1	J	
56-55-3-----	Benzo(A)Anthracene	2	U	
218-01-9-----	Chrysene	4		
205-99-2-----	Benzo(B)Fluoranthene	2	U	
207-08-9-----	Benzo(K)Fluoranthene	2	U	
192-97-2-----	Benzo(E)Pyrene	1	J	
50-32-8-----	Benzo(A)Pyrene	2	U	
198-55-0-----	Perylene	2	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2		
53-70-3-----	Dibenz(A,H)Anthracene	2	U	
191-24-2-----	Benzo(G,H,I)Perylene	3	U	

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-02MSD

Name: ENSECO	Contract:	GAC-SLP15TMSD-062992
Lab Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER		SDG No.:

Sample wt/vol:	1000 (g/mL) ML	Lab Sample ID:	23581-02MSD
Level:	(low/med) LOW	Lab File ID:	C6037
% Moisture:	decanted: (Y/N) N	Date Received:	06/30/92
Concentrated Extract Volume:	500(uL)	Date Extracted:	07/05/92
Injection Volume:	2.0(uL)	Date Analyzed:	08/12/92
GPC Cleanup:	(Y/N) N	Dilution Factor:	0.119
pH:	7.0		

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

Q

CAS NO.	COMPOUND			
271-89-6-----	2,3-Dibenzofuran	41	U	
496-11-7-----	2,3-Dihydroindene	11	U	
95-13-6-----	1H-Indene	61		
91-20-3-----	Naphthalene	74		
4565-32-6-----	Benzo(B)Thiophene	7	U	
91-22-5-----	Quinoline	92		
120-72-9-----	1H-Indole	20	U	
91-57-6-----	2-Methylnaphthalene	64		
90-12-0-----	1-Methylnaphthalene	13	U	
92-52-4-----	Biphenyl	34	U	
208-96-8-----	Acenaphthylene	11	U	
83-32-9-----	Acenaphthene	10	U	
132-64-9-----	Dibenzofuran	8	U	
86-73-7-----	Fluorene	63		
132-65-0-----	Dibenzothiophene	9	U	
85-01-8-----	Phenanthrene	22	B	
120-12-7-----	Anthracene	9	U	
260-94-6-----	Acridine	23	U	
86-74-8-----	Carbazole	15	U	
206-44-0-----	Fluoranthene	9	J	
129-00-0-----	Pyrene	9	J	
56-55-3-----	Benzo(A)Anthracene	20	U	
218-01-9-----	Chrysene	34		
205-99-2-----	Benzo(B)Fluoranthene	20	U	
207-08-9-----	Benzo(K)Fluoranthene	18	U	
192-97-2-----	Benzo(E)Pyrene	8	J	
50-32-8-----	Benzo(A)Pyrene	8	J	
198-55-0-----	Perylene	20	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	17	U	
53-70-3-----	Dibenz(A,H)Anthracene	13	U	
191-24-2-----	Benzo(G,H,I)Perylene	22	U	

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ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

23581-03MS

GAC-SLP15MS-062992

SDG No.:

Name: ENSECO	Contract:	
Code: ENSECO	Case No.: 23581	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 23581-03MS
Sample wt/vol: 4200 (g/mL) ML		Lab File ID: C6017
Level: (low/med) LOW		Date Received: 06/30/92
% Moisture: decanted: (Y/N) N		Date Extracted: 07/02/92
Concentrated Extract Volume: 2000(uL)		Date Analyzed: 08/11/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.476
GPC Cleanup: (Y/N) N	pH: 7.0	

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

Q

CAS NO.	COMPOUND		
271-89-6-----	2,3-Dibenzofuran	78	U
496-11-7-----	2,3-Dihydroindene	21	U
95-13-6-----	1H-Indene	190	
91-20-3-----	Naphthalene	250	B
4565-32-6-----	Benzo(B)Thiophene	14	U
91-22-5-----	Quinoline	330	
120-72-9-----	1H-Indole	38	U
91-57-6-----	2-Methylnaphthalene	220	B
90-12-0-----	1-Methylnaphthalene	25	U
92-52-4-----	Biphenyl	65	U
208-96-8-----	Acenaphthylene	21	U
83-32-9-----	Acenaphthene	19	U
132-64-9-----	Dibenzofuran	15	U
86-73-7-----	Fluorene	220	B
132-65-0-----	Dibenzothiophene	17	U
85-01-8-----	Phenanthrene	18	BJ
120-12-7-----	Anthracene	17	U
260-94-6-----	Acridine	44	U
86-74-8-----	Carbazole	28	U
206-44-0-----	Fluoranthene	21	U
129-00-0-----	Pyrene	21	U
56-55-3-----	Benzo(A)Anthracene	85	
218-01-9-----	Chrysene	77	
205-99-2-----	Benzo(B)Fluoranthene	38	U
207-08-9-----	Benzo(K)Fluoranthene	34	U
192-97-2-----	Benzo(E)Pyrene	29	
50-32-8-----	Benzo(A)Pyrene	31	J
198-55-0-----	Perylene	38	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	32	U
53-70-3-----	Dibenz(A,H)Anthracene	25	U
191-24-2-----	Benzo(G,H,I)Perylene	42	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 23581

SAS No.:

SDG No.:

	EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #	TOT OUT
01	23581-01	86	81	88	0
02	23581-01DU	37	47	49	0
03	23581-01DURE	73	96	74	0
04	23581-01FB	95	116	104	0
05	23581-02	80	96	56	0
06	23581-02DU	79	100	58	0
07	23581-03	95	108	46	0
08	23581-02MS	75	93	57	0
09	23581-02MSD	77	94	58	0
10	23581-03MS	88	102	37	0
11	BLK01	80	94	96	0
12	BLK02	93	112	99	0
13	BLK03	72	90	92	0

QC LIMITS

S1 (NAP) = Naphthalene-d8 (14-108)
 S2 (FLU) = Fluorene-d10 (41-162)
 S3 (CHR) = Chrysene-d12 (10-118)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO

Contract:

Code: ENSECO

Case No.: 23581

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: 23581-02

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	0	6.950	73	20-150
Naphthalene	9.520	2.130	8.794	70	20-150
Quinoline	9.520	0	9.948	104	20-150
2-Methylnaphthalene	9.520	1.285	7.878	69	20-150
Fluorene	9.520	0	7.687	81	20-150
Chrysene	9.520	0	3.951	42	20-150
Benzo(E)Pyrene	9.520	0	1.190	12	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1H-Indene	9.520	7.27	74	6	28	20-150
Naphthalene	9.520	8.87	71	1	28	20-150
Quinoline	9.520	11.0	116	10	28	20-150
2-Methylnaphthalene	9.520	7.59	66	4	28	20-150
Fluorene	9.520	7.53	72	1	28	20-150
Chrysene	9.520	4.00	42	2	28	20-150
Benzo(E)Pyrene	9.520	0.964	10	18	28	10-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 23581 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 23581-03

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	71.4	14.1	48.0	47	20-150
Naphthalene	71.4	3.06	61.9	82	20-150
Quinoline	71.4	0	83.4	117	20-150
2-Methylnaphthalene	71.4	0	55.8	78	20-150
Fluorene	71.4	124	56.0	-95 *	20-150
Chrysene	71.4	0.778	19.3	26	20-150
Benzo(E)Pyrene	71.4	0	7.21	10	10-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Name: ENSECO

Contract:

Code: ENSECO Case No.: 23581 SAS No.: SDG No.:

Lab File ID: C6014 Lab Sample ID: BL070292

Instrument ID: 4500-C Date Extracted: 07/02/92

Matrix: (soil/water) WATER Date Analyzed: 08/11/92

Level: (low/med) LOW Time Analyzed: 1111

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	23581-03	23581-03	C6016	08/11/92
02	23581-03MS	23581-03MS	C6017	08/11/92

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK02

Name: ENSECO

Contract:

Code: ENSECO Case No.: 23581 SAS No.: SDG No.:

Lab File ID: C6029 Lab Sample ID: BL081292

Instrument ID: 4500-C Date Extracted: 07/03/92

Matrix: (soil/water) WATER Date Analyzed: 08/12/92

Level: (low/med) LOW Time Analyzed: 1442

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	23581-01	23581-01	C6030	08/12/92
02	23581-01DU	23581-01DU	C6031	08/12/92
03	23581-01FB	23581-01FB	C6032	08/12/92

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK03

Name: ENSECO

Contract:

Law Code: ENSECO

Case No.: 23581

SAS No.:

SDG No.:

Lab File ID: C6033

Lab Sample ID: BL070592

Instrument ID: 4500-C

Date Extracted: 07/05/92

Matrix: (soil/water) WATER

Date Analyzed: 08/12/92

Level: (low/med) LOW

Time Analyzed: 1800

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	23581-01DURE	23581-01DURE	C6034	08/12/92
02	23581-02	23581-02	C6028	08/12/92
03	23581-02DU	23581-02DU	C6035	08/12/92
04	23581-02MS	23581-02MS	C6036	08/12/92
05	23581-02MSD	23581-02MSD	C6037	08/12/92

COMMENTS:

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 23581 SAS No.: SDG No.:

Lab File ID: C5889T

Run Date: 07/27/92

Instrument ID: 4500-C

Run Time: 1948

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD040	40_PPB_PAH	C5889	07/27/92	1948
02 SSTD1200	1200_PPB_PAH	C5890	07/27/92	2039
03 SSTD240	240_PPB_PAH	C5891	07/27/92	2132
04 SSTD020	20_PPB_PAH	C5892	07/27/92	2224
05 SSTD600	600_PPB_PAH	C5893	07/27/92	2317

5B

Lab Name: ENSECO

Contract:

Case No.: 23581 SAS No.:

SDG No.:

Lab File ID: C6013T

Run Date: 08/11/92

Instrument ID: 4500-C

Run Time: 0954

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
SSTD040	40 PPB PAH	C6013	08/11/92	0954
BLK01	BL070292	C6014	08/11/92	1111
23581-03	23581-03	C6016	08/11/92	1432
23581-03MS	23581-03MS	C6017	08/11/92	1609

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Code: ENSECO

Case No.: 23581

SAS No.:

SDG No.:

Lab File ID: C6026T

Run Date: 08/12/92

Instrument ID: 4500-C

Run Time: 1137

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD040	40 PPB HSL	C6026	08/12/92	1137
02 23581-02	23581-02	C6028	08/12/92	1353
03 BLK02	BL081292	C6029	08/12/92	1442
04 23581-01	23581-01	C6030	08/12/92	1532
05 23581-01DU	23581-01DU	C6031	08/12/92	1621
06 23581-01FB	23581-01FB	C6032	08/12/92	1710
07 BLK03	BL070592	C6033	08/12/92	1800
08 23581-01DURE	23581-01DURE	C6034	08/12/92	1849
09 23581-02DU	23581-02DU	C6035	08/12/92	1938
10 23581-02MS	23581-02MS	C6036	08/12/92	2027
11 23581-02MSD	23581-02MSD	C6037	08/12/92	2116

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: STAND SAS No.: SDG No.:

Instrument ID: 4500-C

Calibration Date(s): 07/27/92 07/27/92

Calibration Times: 1948 2317

LAB FILE ID: RRF240= C5891	RRF20 = C5892 RRF600= C5893	RRF40 = C5889 RF1200= C5890
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COMPOUND	RRF20	RRF40	RRF240	RRF600	RF1200	RRF	% RSD
2,3-Dibenzofuran	1.066	0.984	1.108	1.079	0.991	1.046	5.3
2,3-Dihydroindene	0.954	0.910	0.989	0.967	0.873	0.939	5.0
1H-Indene	1.090	1.007	1.145	1.149	1.043	1.087	5.7
Naphthalene	1.850	1.805	1.812	1.753	1.642	1.772	4.6
Benzo(B)Thiophene	1.891	1.812	1.984	1.918	1.799	1.881	4.1
Quinoline	0.500	0.502	0.716	0.776	0.797	0.658	22.3
1H-Indole	0.854	0.878	0.989	1.019	1.023	0.953	8.5
2-Methylnaphthalene	0.801	0.845	0.905	0.875	0.847	0.855	4.5
1-Methylnaphthalene	0.727	0.719	0.803	0.779	0.744	0.754	4.7
Biphenyl	1.177	1.213	1.303	1.247	1.220	1.232	3.8
Acenaphthylene	1.250	1.026	1.277	1.297	1.290	1.228	9.3
Acenaphthene	0.884	0.865	0.973	0.939	0.926	0.917	4.7
Dibenzofuran	1.290	1.361	1.463	1.429	1.418	1.392	4.9
Fluorene	0.941	1.054	1.079	1.031	1.045	1.030	5.1
benzothiophene	1.241	1.159	1.390	1.310	1.255	1.271	6.7
naphthrene	1.175	1.020	1.127	1.079	1.058	1.092	5.5
anthracene	0.759	0.714	0.913	0.959	0.991	0.867	14.2
Acridine	0.347	0.329	0.524	0.589	0.634	0.485	28.8
Carbazole	0.605	0.605	0.777	0.798	0.823	0.722	14.9
Fluoranthene	0.884	0.810	0.988	0.999	0.994	0.935	9.0
Pyrene	1.178	1.028	1.066	1.070	1.064	1.081	5.2
Benzo(A)Anthracene	0.649	0.590	0.773	0.768	0.766	0.709	11.9
Chrysene	0.839	0.735	0.781	0.753	0.714	0.764	6.3
Benzo(B)Fluoranthene	0.904	0.711	0.887	0.918	0.837	0.851	9.9
Benzo(K)Fluoranthene	0.757	0.679	0.882	0.775	0.786	0.776	9.4
Benzo(E)Pyrene	0.765	0.695	0.747	0.781	0.766	0.751	4.5
Benzo(A)Pyrene	0.698	0.639	0.747	0.682	0.710	0.695	5.7
Perylene	0.694	0.588	0.708	0.681	0.689	0.672	7.1
Indeno(1,2,3-CD)Pyrene	0.794	0.622	0.837	0.791	0.773	0.763	10.8
Dibenz(A,H)Anthracene	0.709	0.570	0.727	0.672	0.665	0.669	9.1
Benzo(G,H,I)Perylene	0.840	0.662	0.794	0.706	0.689	0.738	10.2
Naphthalene-d8	1.567	1.435	1.615	1.563	1.476	1.531	4.8
Fluorene-d10	0.749	0.763	0.856	0.826	0.849	0.809	6.1
Chrysene-d12	0.752	0.600	0.628	0.591	0.564	0.627	11.7

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 23581 SAS No.: SDG No.:

Instrument ID: 4500-C Calibration date: 08/11/92 Time: 0954

Lab File ID: C6013 Init. Calib. Date(s): 07/27/92 07/27/92

Init. Calib. Times: 1948 2317

COMPOUND	RRF	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.046	0.711		32.0	35.0
2,3-Dihydroindene	0.939	0.683		27.3	35.0
1H-Indene	1.087	0.753		30.7	35.0
Naphthalene	1.772	1.459		17.7	35.0
Benzo(B)Thiophene	1.881	1.428		24.1	35.0
Quinoline	0.658	0.523		20.5	35.0
1H-Indole	0.953	0.808		15.2	35.0
2-Methylnaphthalene	0.855	0.795		7.0	35.0
1-Methylnaphthalene	0.754	0.686		9.0	35.0
Biphenyl	1.232	1.058		14.1	35.0
Acenaphthylene	1.228	1.069		13.0	35.0
Acenaphthene	0.917	0.834		9.1	35.0
Dibenzofuran	1.392	1.180		15.2	35.0
Fluorene	1.030	1.020		1.0	35.0
Dibenzothiophene	1.271	1.207		5.0	35.0
Phenanthrene	1.092	1.030		5.7	35.0
Anthracene	0.867	0.873		-0.7	35.0
Acridine	0.485	0.420		13.4	35.0
Carbazole	0.722	0.588		18.6	35.0
Fluoranthene	0.935	1.019		-9.0	35.0
Pyrene	1.081	1.175		-8.7	35.0
Benzo(A)Anthracene	0.709	0.713		-0.6	35.0
Chrysene	0.764	0.785		-2.7	35.0
Benzo(B)Fluoranthene	0.851	0.778		8.6	35.0
Benzo(K)Fluoranthene	0.776	0.784		-1.0	35.0
Benzo(E)Pyrene	0.751	0.744		0.9	35.0
Benzo(A)Pyrene	0.695	0.694		0.1	35.0
Perylene	0.672	0.484		28.0	35.0
Indeno(1,2,3-CD)Pyrene	0.763	0.726		4.8	35.0
Dibenz(A,H)Anthracene	0.669	0.630		5.8	35.0
Benzo(G,H,I)Perylene	0.738	0.622		15.7	35.0
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Naphthalene-d8	1.531	1.181		22.9	35.0
Fluorene-d10	0.809	0.761		5.9	35.0
Chrysene-d12	0.627	0.548		12.6	35.0

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 23581 SAS No.: SDG No.:

Instrument ID: 4500-C Calibration date: 08/12/92 Time: 1137

Lab File ID: C6026 Init. Calib. Date(s): 07/27/92 07/27/92

Init. Calib. Times: 1948 2317

COMPOUND	RRF	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.046	0.756	27.7	35.0	
2,3-Dihydroindene	0.939	0.739	21.3	35.0	
1H-Indene	1.087	0.816	24.9	35.0	
Naphthalene	1.772	1.551	12.5	35.0	
Benzo(B)Thiophene	1.881	1.562	17.0	35.0	
Quinoline	0.658	0.484	26.4	35.0	
1H-Indole	0.953	0.766	19.6	35.0	
2-Methylnaphthalene	0.855	0.808	5.5	35.0	
1-Methylnaphthalene	0.754	0.696	7.7	35.0	
Biphenyl	1.232	1.115	9.5	35.0	
Acenaphthylene	1.228	1.027	16.4	35.0	
Acenaphthene	0.917	0.845	7.9	35.0	
Dibenzofuran	1.392	1.205	13.4	35.0	
Fluorene	1.030	1.005	2.4	35.0	
Dibenzothiophene	1.271	1.233	3.0	35.0	
Phenanthrene	1.092	1.080	1.1	35.0	
Anthracene	0.867	0.830	4.3	35.0	
Acridine	0.485	0.376	22.5	35.0	
Carbazole	0.722	0.546	24.4	35.0	
Fluoranthene	0.935	0.978	-4.6	35.0	
Pyrene	1.081	1.107	-2.4	35.0	
Benzo(A)Anthracene	0.709	0.724	-2.1	35.0	
Chrysene	0.764	0.868	-13.6	35.0	
Benzo(B)Fluoranthene	0.851	0.842	1.1	35.0	
Benzo(K)Fluoranthene	0.776	0.765	1.4	35.0	
Benzo(E)Pyrene	0.751	0.765	-1.9	35.0	
Benzo(A)Pyrene	0.695	0.736	-5.9	35.0	
Perylene	0.672	0.617	8.2	35.0	
Indeno(1,2,3-CD)Pyrene	0.763	0.709	7.1	35.0	
Dibenz(A,H)Anthracene	0.669	0.646	3.4	35.0	
Benzo(G,H,I)Perylene	0.738	0.562	23.8	35.0	
Naphthalene-d8	1.531	1.269	17.1	35.0	
Fluorene-d10	0.809	0.761	5.9	35.0	
Chrysene-d12	0.627	0.588	6.2	35.0	

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Code: ENSECO

Case No.: 23581

SAS No.:

SDG No.:

Lab File ID (Standard): C6013

Date Analyzed: 08/11/92

Instrument ID: 4500-C

Time Analyzed: 0954

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	416131	15.27	635047	19.00	784707	28.74
UPPER LIMIT	832262	15.77	1270094	19.50	1569414	29.24
LOWER LIMIT	208066	14.77	317524	18.50	392354	28.24
EPA SAMPLE NO.						
01 23581-03	330850	15.27	488475	19.00	539059	28.74
02 23581-03MS	283412	15.34	428204	19.07	466391	28.79
03 BLK01	373926	15.27	532661	19.00	649677	28.76

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 23581

SAS No.:

SDG No.:

Lab File ID (Standard): C6026

Date Analyzed: 08/12/92

Instrument ID: 4500-C

Time Analyzed: 1137

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	310435	15.30	451609	19.03	465321	28.77
UPPER LIMIT	620870	15.80	903218	19.53	930642	29.27
LOWER LIMIT	155218	14.80	225804	18.53	232660	28.27
EPA SAMPLE NO.						
01 23581-01	392661	15.45	545571	19.15	572811	28.91
02 23581-01DU	293750	15.32	428340	19.03	506465	28.76
03 23581-01DURE	269424	15.30	405724	19.02	448836	28.76
04 23581-01FB	249316	15.30	374680	19.03	418552	28.77
05 23581-02	257210	15.32	372767	19.07	449093	28.77
06 23581-02DU	189933	15.30	275214	19.02	338008	28.76
07 23581-02MS	193912	15.30	287396	19.00	341885	28.76
08 23581-02MSD	194020	15.29	290577	19.02	316221	28.76
09 BLK02	269630	15.42	405927	19.13	477082	28.89
10 BLK03	265885	15.29	376287	19.02	417355	28.76

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.



**CASE NARRATIVE
FOR**

City of St. Louis Park

December 17, 1992

Enseco - RMAL Project Number 026507

Introduction

Eleven aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on December 01, 1992. The samples were logged in under RMAL project number 026507. Sample GAC-SLP4FBD-113092 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

Sample 026507-0004, showed a surrogate which exceeded the upper control limits. All instrument calibration, surrogate standard concentration, etc. were checked and found to be in control. It has been concluded that an interference specific to the surrogate is present which resulted in the high recoveries. This interference does not affect the quantitation of target components.



Case Narrative - RMAL #026507
December 17, 1992
Page Two

26507-0001MS/SD matrix spike percent recovery for Quinoline was reported outside of QC limits due to an interference present in the sample. Quantitation was checked and no further action was taken.

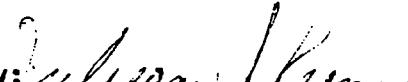
Sample 026507-0001DU showed target compounds above the upper calibration range. The sample was reanalyzed at dilutions. Both the original and reanalysis data are reported for this sample.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 026507 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by:


Julieann L. Kramer
Program Manager

Date:

12/17/92

Approved by:


Mark Dymerski
Technical Manager

Date:

12/17/92



Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.



Qualifier Codes and Their Usage

Page Two

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polycyclic aromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Received Time	Received Date
026507-0001-SA	GAC-SLP4F-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0001-DU	GAC-SLP4FD-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0001-MS	GAC-SLP4MS-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0001-SD	GAC-SLP4MSD-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0001-FB	GAC-SLP4FB-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0001-FD	GAC-SLP4FBD-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0002-SA	GAC-SLP4T-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0002-DU	GAC-SLP4TD-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0003-SA	PCJ-SLP16-113092	AQUEOUS	30 NOV 92		01 DEC 92
026507-0004-SA	Ped-SLP17-113092 <i>m.s.h.</i>	AQUEOUS	30 NOV 92		01 DEC 92
026507-0005-SA	GAC-SLP15T-113092	AQUEOUS	30 NOV 92		01 DEC 92

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 026507	Group Code	Analysis Description	Custom Test?
0001 , 0001, 0002 - 0005	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level Prep - PAH/SIM by GC/MS Low Level	N N
0001	B	Prep - PAH/SIM by GC/MS Low Level	N

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FOR
CITY OF ST. LOUIS PARK
RMAL PROJECT# 026507

PPT-PAH

QC Summary.....	0001
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Rocky Mountain Analytical Laboratory
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Enesco Houston
1420 East North Drive
Suite 120
Houston, TX 77032
713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING				SHIPPING DETAILS		
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>MZB</i>		
				METHOD OF SHIPMENT <i>FED EX</i>	AIRBILL NUMBER <i>2103420572</i>	
				RECEIVED FOR LAB <i>ENSECO - Ram</i>	SIGNED <i>Robert M. Ritz</i>	DATE/TIME <i>0900 hrs,</i> <i>01 DEC 92</i>
				ENSECO PROJECT NUMBER <i>26507</i>		



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Enseco Houston
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713/987-9767 FAX: 713/987-9769

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>M. J. R.</i>	AIRBILL NUMBER
				METHOD OF SHIPMENT <i>FED EX</i>	DATE/TIME <i>0900 hrs</i> , <i>01 DEC 92</i>
				RECEIVED FOR LAB <i>ENSECO-TRM AL</i>	SIGNED <i>Robert M. Rife</i>
				ENSECO PROJECT NUMBER <i>26507</i>	



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CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>B.J.D.</i>			
				METHOD OF SHIPMENT <i>FED EX</i>	AIRBILL NUMBER <i>2103420572</i>		
				RECEIVED FOR LAB <i>ENSECO - RMAI</i>	SIGNED <i>Robert M. Ross</i>	DATE/TIME <i>0900hrs 01 DEC 98</i>	
				ENSECO PROJECT NUMBER <i>26507</i>			



**Rocky Mountain Analytical Laboratory
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Arvada, CO 80002
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CHAIN OF CUSTODY

ENSECO CLIENT

CITY OF ST LOUIS PARK (WATER DEPT)

PROJECT

SAMPLING COMPANY

سچن

SAMPLING SITE

5076

TEAM LEADER

P. 2. B

CUSTODY TRANSFERS PRIOR TO SHIPPING

SHIPPING DETAILS

RELINQUISHED BY (SIGNED)

RECEIVED BY (SIGNED)

DATA

TIME

DELIVERED TO SHIPPER BY

7728

METHOD OF SHIPMENT

FED EX

AIRBILL NUMBER

2103420572

~~00328~~
DATE/TIME 01 Dec 92,
0900 hrs

ENSECO PROJECT NUMBER

SIGNED 

DATE/TIME 01 DEC 92
0900 hrs

2650

SUMMARY

DATA

PACKAGE

FOR

CITY OF ST. LOUIS PARK
RMAN # 26507

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

b Name: ENSECO	Contract:	BLK01
Lab Code: ENSECO	Case No.: 26507	SAS No.: SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: BL120192
Sample wt/vol: 4000 (g/mL) ML		Lab File ID: C6996
Level: (low/med) LOW		Date Received:
‡ Moisture: decanted: (Y/N) N		Date Extracted: 12/01/92
Concentrated Extract Volume: 500(uL)		Date Analyzed: 12/11/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.125
GPC Cleanup: (Y/N) N pH: 7.0		
CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q		
CAS NO.	COMPOUND	
271-89-6-----	2,3-Dibenzofuran	5 U
496-11-7-----	2,3-Dihydroindene	1 U
95-13-6-----	1H-Indene	0.9 U
91-20-3-----	Naphthalene	6 U
4565-32-6-----	Benzo(B)Thiophene	0.9 U
91-22-5-----	Quinoline	1 U
120-72-9-----	1H-Indole	2 U
91-57-6-----	2-Methylnaphthalene	0.9 U
90-12-0-----	1-Methylnaphthalene	2 U
92-52-4-----	Biphenyl	4 U
208-96-8-----	Acenaphthylene	1 U
83-32-9-----	Acenaphthene	1 U
132-64-9-----	Dibenzofuran	1 U
86-73-7-----	Fluorene	1 U
132-65-0-----	Dibenzothiophene	1 U
85-01-8-----	Phenanthrene	2 U
120-12-7-----	Anthracene	1 U
260-94-6-----	Acridine	3 U
86-74-8-----	Carbazole	2 U
206-44-0-----	Fluoranthene	1 U
129-00-0-----	Pyrene	1 U
56-55-3-----	Benzo(A)Anthracene	2 U
218-01-9-----	Chrysene	3 U
205-99-2-----	Benzo(B)Fluoranthene	2 U
207-08-9-----	Benzo(K)Fluoranthene	2 U
192-97-2-----	Benzo(E)Pyrene	2 U
50-32-8-----	Benzo(A)Pyrene	2 U
198-55-0-----	Perylene	2 U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2 U
53-70-3-----	Dibenz(A,H)Anthracene	2 U
191-24-2-----	Benzo(G,H,I)Perylene	3 U

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK02

b Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Lab File ID:

C6997

Lab Sample ID: BL120292

Instrument ID:

4500-C

Date Extracted: 12/02/92

Matrix: (soil/water) WATER

Date Analyzed: 12/11/92

Level: (low/med) LOW

Time Analyzed: 2139

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	26507-01FB	26507-01FB	C6994	12/11/92
02	26507-02	26507-02	C6989	12/11/92
03	26507-02DU	26507-02DU	C6990	12/11/92
04	26507-03	26507-03	C6991	12/11/92

COMMENTS:

IX
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BLK02

b Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 26507	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: BL120292
Sample wt/vol: 4000 (g/mL) ML		Lab File ID: C6997
Level: (low/med) LOW		Date Received:
% Moisture:	decanted: (Y/N) N	Date Extracted: 12/02/92
Concentrated Extract Volume:	500(uL)	Date Analyzed: 12/11/92
Injection Volume:	2.0(uL)	Dilution Factor: 0.125
GPC Cleanup: (Y/N) N	pH: 7.0	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L		Q
271-89-6-----	2,3-Dibenzofuran	5	U	
496-11-7-----	2,3-Dihydroindene	1	U	
95-13-6-----	1H-Indene	0.9	U	
91-20-3-----	Naphthalene	2	J	
4565-32-6-----	Benzo(B)Thiophene	0.9	U	
91-22-5-----	Quinoline	1	U	
120-72-9-----	1H-Indole	2	U	
91-57-6-----	2-Methylnaphthalene	2		
90-12-0-----	1-Methylnaphthalene	2	U	
92-52-4-----	Biphenyl	4	U	
208-96-8-----	Acenaphthylene	1	U	
83-32-9-----	Acenaphthene	1	U	
132-64-9-----	Dibenzofuran	1	U	
86-73-7-----	Fluorene	1	U	
132-65-0-----	Dibenzothiophene	1	U	
85-01-8-----	Phenanthrene	3		
120-12-7-----	Anthracene	1	U	
260-94-6-----	Acridine	3	U	
86-74-8-----	Carbazole	2	U	
206-44-0-----	Fluoranthene	1	J	
129-00-0-----	Pyrene	1	J	
56-55-3-----	Benzo(A)Anthracene	2	U	
218-01-9-----	Chrysene	3	U	
205-99-2-----	Benzo(B)Fluoranthene	2	U	
207-08-9-----	Benzo(K)Fluoranthene	2	U	
192-97-2-----	Benzo(E)Pyrene	2	U	
50-32-8-----	Benzo(A)Pyrene	2	U	
198-55-0-----	Perylene	2	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U	
53-70-3-----	Dibenz(A,H)Anthracene	2	U	
191-24-2-----	Benzo(G,H,I)Perylene	3	U	

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK03

b Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 26507 SAS No.: SDG No.:

Lab File ID: C7023 Lab Sample ID: BL120392

Instrument ID: 4500-C Date Extracted: 12/03/92

Matrix: (soil/water) WATER Date Analyzed: 12/15/92

Level: (low/med) LOW Time Analyzed: 1725

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	26507-04	26507-04	C6992	12/11/92
02	26507-05	26507-05	C6993	12/11/92

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Name: ENSECO	Contract:	26507-05
Lab Code: ENSECO	Case No.: 26507	SAS No.: GAC-SLP15T-113092
SDG No.:		
Matrix: (soil/water) WATER	Lab Sample ID:	26507-05
Sample wt/vol: 4200 (g/mL) ML	Lab File ID:	C6993
Level: (low/med) LOW	Date Received:	12/01/92
% Moisture: decanted: (Y/N) N	Date Extracted:	12/03/92
Concentrated Extract Volume: 500(uL)	Date Analyzed:	12/11/92
Injection Volume: 2.0(uL)	Dilution Factor:	0.119
GPC Cleanup: (Y/N) N pH: 7.0	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q	

271-89-6-----	2,3-Dibenzofuran	5	U
496-11-7-----	2,3-Dihydroindene	110	
95-13-6-----	1H-Indene	3	
91-20-3-----	Naphthalene	4	
4565-32-6-----	Benzo(B)Thiophene	15	BJ
91-22-5-----	Quinoline	1	U
120-72-9-----	1H-Indole	2	J
91-57-6-----	2-Methylnaphthalene	2	B
90-12-0-----	1-Methylnaphthalene	2	R
92-52-4-----	Biphenyl	10	
208-96-8-----	Acenaphthylene	26	
83-32-9-----	Acenaphthene	79	
132-64-9-----	Dibenzofuran	8	R
86-73-7-----	Fluorene	35	
132-65-0-----	Dibenzothiophene	5	
85-01-8-----	Phenanthrene	5	B
120-12-7-----	Anthracene	1	J
260-94-6-----	Acridine	1	J
86-74-8-----	Carbazole	2	
206-44-0-----	Fluoranthene	10	B
129-00-0-----	Pyrene	10	B
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

b Name: ENSECO		Contract:	26507-01FB
Lab Code: ENSECO	Case No.: 26507	SAS No.:	GAC-SLP4FB-113092 SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID:	26507-01FB
Sample wt/vol: 4200 (g/mL) ML		Lab File ID:	C6994
Level: (low/med) LOW		Date Received:	12/01/92
% Moisture: decanted: (Y/N) N		Date Extracted:	12/02/92
Concentrated Extract Volume: 500(uL)		Date Analyzed:	12/11/92
Injection Volume: 2.0(uL)		Dilution Factor:	0.119
GPC Cleanup: (Y/N) N pH: 7.0		CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q	

271-89-6-----	2,3-Dibenzofuran	5	U
496-11-7-----	2,3-Dihydroindene	1	J
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	3	BJ
4565-32-6-----	Benzo(B)Thiophene	0.9	U
91-22-5-----	Quinoline	1	U
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	2	B
90-12-0-----	1-Methylnaphthalene	1	J
92-52-4-----	Biphenyl	4	U
208-96-8-----	Acenaphthylene	1	U
83-32-9-----	Acenaphthene	1	U
132-64-9-----	Dibenzofuran	1	U
86-73-7-----	Fluorene	1	U
132-65-0-----	Dibenzothiophene	1	U
85-01-8-----	Phenanthrene	3	B
120-12-7-----	Anthracene	1	U
260-94-6-----	Acridine	3	U
86-74-8-----	Carbazole	2	U
206-44-0-----	Fluoranthene	1	BJ
129-00-0-----	Pyrene	1	BJ
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

b Name: ENSECO	Contract:	26507-01MS
Lab Code: ENSECO	Case No.: 26507	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26507-01MS
Sample wt/vol: 4200 (g/mL) ML		Lab File ID: C6987
Level: (low/med) LOW		Date Received: 12/01/92
% Moisture: decanted: (Y/N) N		Date Extracted: 12/01/92
Concentrated Extract Volume: 500(uL)		Date Analyzed: 12/11/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.119
GPC Cleanup: (Y/N) N	pH: 7.0	

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

CAS NO.	COMPOUND	Q
271-89-6-----	2,3-Dibenzofuran	5
496-11-7-----	2,3-Dihydroindene	8
95-13-6-----	1H-Indene	6
91-20-3-----	Naphthalene	17
4565-32-6-----	Benzo(B)Thiophene	0.9
91-22-5-----	Quinoline	19
120-72-9-----	1H-Indole	2
91-57-6-----	2-Methylnaphthalene	10
90-12-0-----	1-Methylnaphthalene	1
92-52-4-----	Biphenyl	4
208-96-8-----	Acenaphthylene	1
83-32-9-----	Acenaphthene	1
132-64-9-----	Dibenzofuran	1
86-73-7-----	Fluorene	7
132-65-0-----	Dibenzothiophene	1
85-01-8-----	Phenanthrene	4
120-12-7-----	Anthracene	1
260-94-6-----	Acridine	3
86-74-8-----	Carbazole	2
206-44-0-----	Fluoranthene	2
129-00-0-----	Pyrene	2
56-55-3-----	Benzo(A)Anthracene	2
218-01-9-----	Chrysene	4
205-99-2-----	Benzo(B)Fluoranthene	2
207-08-9-----	Benzo(K)Fluoranthene	2
192-97-2-----	Benzo(E)Pyrene	2
50-32-8-----	Benzo(A)Pyrene	2
198-55-0-----	Perylene	2
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2
53-70-3-----	Dibenz(A,H)Anthracene	2
191-24-2-----	Benzo(G,H,I)Perylene	3

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

26507-01MSD

b Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 26507	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26507-01MSD
Sample wt/vol: 4200 (g/mL) ML		Lab File ID: C6988
Level: (low/med) LOW		Date Received: 12/01/92
% Moisture: decanted: (Y/N) N		Date Extracted: 12/01/92
Concentrated Extract Volume: 500(uL)		Date Analyzed: 12/11/92
Injection Volume: 2.0(uL)		Dilution Factor: 0.119
GPC Cleanup: (Y/N) N	pH: 7.0	

CONCENTRATION UNITS:
(ng/L or ug/Kg) ng/L

Q

CAS NO.	COMPOUND			
271-89-6-----	2,3-Dibenzofuran	5	U	
496-11-7-----	2,3-Dihydroindene	8		
95-13-6-----	1H-Indene	6		
91-20-3-----	Naphthalene	18		
4565-32-6-----	Benzo(B)Thiophene	0.9	U	
91-22-5-----	Quinoline	19		
120-72-9-----	1H-Indole	2	U	
91-57-6-----	2-Methylnaphthalene	11		
90-12-0-----	1-Methylnaphthalene	2		
92-52-4-----	Biphenyl	4	U	
208-96-8-----	Acenaphthylene	1	UU	
83-32-9-----	Acenaphthene	1	UU	
132-64-9-----	Dibenzofuran	1	U	
86-73-7-----	Fluorene	7		
132-65-0-----	Dibenzothiophene	1	U	
85-01-8-----	Phenanthrene	5	B	
120-12-7-----	Anthracene	1	U	
260-94-6-----	Acridine	3	UU	
86-74-8-----	Carbazole	2	U	
206-44-0-----	Fluoranthene	2		
129-00-0-----	Pyrene	2		
56-55-3-----	Benzo(A)Anthracene	2	U	
218-01-9-----	Chrysene	5		
205-99-2-----	Benzo(B)Fluoranthene	1	JR	
207-08-9-----	Benzo(K)Fluoranthene	2	U	
192-97-2-----	Benzo(E)Pyrene	1	J	
50-32-8-----	Benzo(A)Pyrene	2	U	
198-55-0-----	Perylene	2	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U	
53-70-3-----	Dibenz(A,H)Anthracene	2	U	
191-24-2-----	Benzo(G,H,I)Perylene	3	U	

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

b Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.: i

	EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #	TOT OUT
1	26507-01	81	82	47	0
2	26507-01DU	75	75	42	0
3	26507-01DUDL	82	81	56	0
4	26507-01FB	81	82	94	0
5	26507-02	72	72	31	0
6	26507-02DU	76	76	45	0
7	26507-03	70	72	38	0
8	26507-04	125 *	78	43	1
9	26507-05	69	74	49	0
0	26507-01MS	74	78	40	0
1	26507-01MSD	70	77	45	0
2	BLK01	86	81	79	0
3	BLK02	71	71	85	0
4	BLK03	98	108	84	0

QC LIMITS

S1 (NAP) = Naphthalene-d8

(14-108)

S2 (FLU) = Fluorene-d10

(41-162)

S3 (CHR) = Chrysene-d12

(10-118)

```
# Column to be used to flag recovery values  
* Values outside of contract required QC limits  
D Surrogate diluted out
```

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

b Name: ENSECO

Contract:

b Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: 26507-01

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	4.760	4.082	5.879	38	20-150
Naphthalene	4.760	12.14	16.90	101	20-150
Quinoline	4.760	2.404	19.28	353 *	20-150
2-Methylnaphthalene	4.760	6.545	10.40	81	20-150
Fluorene	4.760	1.094	7.473	134	20-150
Chrysene	4.760	1.077	4.070	63	20-150
Benzo(E)Pyrene	4.760	ND	ND	NC	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1H-Indene	4.760	5.890	38	NC	28	20-150
Naphthalene	4.760	18.21	130	25	28	20-150
Quinoline	4.760	19.40	357 *	1	28	20-150
2-Methylnaphthalene	4.760	10.84	89	9	28	20-150
Fluorene	4.760	7.426	133	1	28	20-150
Chrysene	4.760	4.582	74	16	28	20-150
Benzo(E)Pyrene	4.760	0.9960	21	NC	28	10-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

b Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 26507	SAS No.:
Lab File ID:	C6996	Lab Sample ID: BL120192
Instrument ID:	4500-C	Date Extracted: 12/01/92
Matrix: (soil/water) WATER		Date Analyzed: 12/11/92
Level: (low/med)	LOW	Time Analyzed: 2049

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	26507-01	26507-01	C6985	12/11/92
02	26507-01DU	26507-01DU	C6986	12/11/92
03	26507-01DUDL	26507-01DUDL	C6999	12/12/92
04	26507-01MS	26507-01MS	C6987	12/11/92
05	26507-01MSD	26507-01MSD	C6988	12/11/92

COMMENTS:

1X
ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Lab Name:	ENSECO	Contract:	BLK03	
Lab Code:	ENSECO	Case No.:	SAS No.:	
Matrix:	(soil/water)	WATER	Lab Sample ID:	BL120392
Sample wt/vol:	4000	(g/mL) ML	Lab File ID:	C7023
Level:	(low/med)	LOW	Date Received:	
% Moisture:		decanted: (Y/N) N	Date Extracted:	12/03/92
Concentrated Extract Volume:		500(uL)	Date Analyzed:	12/15/92
Injection Volume:		2.0(uL)	Dilution Factor:	0.125
GPC Cleanup:	(Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ng/L or ug/Kg) ng/L Q	
CAS NO.	COMPOUND			
271-89-6-----	2,3-Dibenzofuran	5	U	
496-11-7-----	2,3-Dihydroindene	1	U	
95-13-6-----	1H-Indene	0.9	U	
91-20-3-----	Naphthalene	2	J	
4565-32-6-----	Benzo(B)Thiophene	0.9	U	
91-22-5-----	Quinoline	1	U	
120-72-9-----	1H-Indole	2	U	
91-57-6-----	2-Methylnaphthalene	2		
90-12-0-----	1-Methylnaphthalene	2	U	
92-52-4-----	Biphenyl	4	U	
208-96-8-----	Acenaphthylene	1	U	
83-32-9-----	Acenaphthene	1	U	
132-64-9-----	Dibenzofuran	1	U	
86-73-7-----	Fluorene	1	U	
132-65-0-----	Dibenzothiophene	1	U	
85-01-8-----	Phenanthrene	4		
120-12-7-----	Anthracene	1	U	
260-94-6-----	Acridine	3	U	
86-74-8-----	Carbazole	2	U	
206-44-0-----	Fluoranthene	1	J	
129-00-0-----	Pyrene	1	J	
56-55-3-----	Benzo(A)Anthracene	2	U	
218-01-9-----	Chrysene	3	U	
205-99-2-----	Benzo(B)Fluoranthene	2	U	
207-08-9-----	Benzo(K)Fluoranthene	2	U	
192-97-2-----	Benzo(E)Pyrene	2	U	
50-32-8-----	Benzo(A)Pyrene	2	U	
198-55-0-----	Perylene	2	U	
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U	
53-70-3-----	Dibenz(A,H)Anthracene	2	U	
191-24-2-----	Benzo(G,H,I)Perylene	3	U	

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Lab File ID: BC121092T

Run Date: 12/10/92

Instrument ID: 4500-C

Run Time: 0947

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD020	20_PPB_PAH	C6956	12/10/92	0947
02	SSTD160	160_PPB_PAH	C6957	12/10/92	1037
03	SSTD600	600_PPB_PAH	C6958	12/10/92	1127
04	SSTD240	240_PPB_HSL	C6959	12/10/92	1218
05	SSTD040	40_PPB_PAH	C6960	12/10/92	1310

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Lab File ID: C6984T

Run Date: 12/11/92

Instrument ID: 4500-C

Run Time: 1006

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD040	40_PPB_PAH	C6984	12/11/92	1006
02 26507-01	26507-01	C6985	12/11/92	1134
03 26507-01DU	26507-01DU	C6986	12/11/92	1224
04 26507-01MS	26507-01MS	C6987	12/11/92	1314
05 26507-01MSD	26507-01MSD	C6988	12/11/92	1405
06 26507-02	26507-02	C6989	12/11/92	1456
07 26507-02DU	26507-02DU	C6990	12/11/92	1547
08 26507-03	26507-03	C6991	12/11/92	1638
09 26507-04	26507-04	C6992	12/11/92	1728
10 26507-05	26507-05	C6993	12/11/92	1819
11 26507-01FB	26507-01FB	C6994	12/11/92	1909
12 BLK01	BL120192	C6996	12/11/92	2049
13 BLK02	BL120292	C6997	12/11/92	2139

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Lab File ID: C6998T

Run Date: 12/12/92

Instrument ID: 4500-C

Run Time: 1425

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40 PPB PAH	C6998	12/12/92	1425
02	26507-01DUDL	26507-01DUDL	C6999	12/12/92	1556

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Lab Code: ENSECO Case No.: 26507 SAS No.: SDG No.:

Lab File ID: C7019T Run Date: 12/15/92

Instrument ID: 4500-C Run Time: 1222

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C7019	12/15/92	1222
02	BLK03	BLI20392	C7023	12/15/92	1725

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: STAND

SAS No.:

SDG No.:

Instrument ID: 4500-C

Calibration Date(s): 12/10/92

12/10/92

Calibration Times: 0947

1310

LAB FILE ID: RRF240= C6959	RRF20 = C6956 RRF600= C6958	RRF40 = C6960 RF1200= C6957
-------------------------------	--------------------------------	--------------------------------

COMPOUND	RRF20	RRF40	RRF240	RRF600	RF1200	RRF	% RSD
2,3-Dibenzofuran	0.909	1.305	1.072	0.961	1.153	1.080	14.6
2,3-Dihydroindene	0.854	1.208	0.963	0.891	1.044	0.992	14.2
1H-Indene	1.860	2.077	1.693	1.665	1.625	1.784	10.5
Naphthalene	2.248	2.825	2.296	2.589	1.747	2.341	17.3
Benzo(B)Thiophene	1.389	1.768	1.452	1.696	1.408	1.543	11.4
Quinoline	0.657	0.809	0.838	1.063	1.088	0.891	20.4
1H-Indole	1.029	1.243	1.260	1.343	1.217	1.218	9.5
2-Methylnaphthalene	1.115	1.201	1.039	1.199	1.144	1.140	5.9
1-Methylnaphthalene	1.406	1.677	1.582	1.650	1.384	1.540	8.9
Biphenyl	1.392	1.569	1.378	1.587	1.238	1.433	10.2
Acenaphthylene	1.790	1.997	1.881	2.272	1.597	1.907	13.2
Acenaphthene	1.168	1.344	1.180	1.351	1.172	1.243	7.7
Dibenzofuran	1.636	1.767	1.637	1.842	1.410	1.658	9.9
Fluorene	1.470	1.604	1.496	1.687	1.395	1.530	7.5
benzothiophene	0.856	0.983	0.908	0.973	0.754	0.895	10.5
benanthrene	1.087	1.210	1.071	1.173	0.819	1.072	14.3
Anthracene	0.820	0.934	0.928	1.078	0.856	0.923	10.7
Acridine	0.277	0.449	0.445	0.589	0.602	0.472	28.0
Carbazole	0.712	0.867	0.854	0.937	0.767	0.827	10.7
Fluoranthene	0.793	0.945	0.869	1.001	0.842	0.890	9.3
Pyrene	0.954	1.048	0.900	1.032	0.849	0.957	8.9
Benzo(A)Anthracene	1.509	1.577	1.726	1.971	1.992	1.755	12.6
Chrysene	1.882	1.811	1.865	2.071	1.957	1.917	5.2
Benzo(B)Fluoranthene	1.586	1.673	1.605	1.933	1.874	1.734	9.2
Benzo(K)Fluoranthene	1.504	1.622	1.454	1.540	1.588	1.542	4.3
Benzo(E)Pyrene	1.449	1.618	1.504	1.642	1.662	1.575	5.9
Benzo(A)Pyrene	1.273	1.347	1.289	1.280	1.476	1.333	6.4
Perylene	1.381	1.422	1.100	1.643	1.110	1.331	17.2
Indeno(1,2,3-CD)Pyrene	1.164	1.319	1.230	1.369	1.344	1.285	6.7
Dibenz(A,H)Anthracene	1.043	1.142	1.080	1.212	1.170	1.129	6.0
Benzo(G,H,I)Perylene	1.209	1.244	1.126	1.271	1.228	1.216	4.5
Naphthalene-d8	1.669	1.983	1.658	1.756	1.537	1.721	9.7
Fluorene-d10	0.977	1.060	0.993	1.133	1.057	1.044	6.0
Chrysene-d12	1.746	1.473	1.407	1.539	1.518	1.537	8.3

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Instrument ID: 4500-C

Calibration date: 12/11/92 Time: 1006

Lab File ID: C6984

Init. Calib. Date(s): 12/10/92 12/10/92

Init. Calib. Times: 0947 1310

COMPOUND	RRF	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.080	1.297		-20.1	35.0
2,3-Dihydroindene	0.992	1.056		-6.5	35.0
1H-Indene	1.784	2.048		-14.8	35.0
Naphthalene	2.341	2.610		-11.5	35.0
Benzo(B)Thiophene	1.543	1.652		-7.1	35.0
Quinoline	0.891	0.821		7.9	35.0
1H-Indole	1.218	1.054		13.5	35.0
2-Methylnaphthalene	1.140	1.132		0.7	35.0
1-Methylnaphthalene	1.540	1.593		-3.4	35.0
Biphenyl	1.433	1.611		-12.4	35.0
Acenaphthylene	1.907	2.063		-8.2	35.0
Acenaphthene	1.243	1.390		-11.8	35.0
Dibenzofuran	1.658	1.631		1.6	35.0
Fluorene	1.530	1.524		0.4	35.0
Dibenzothiophene	0.895	0.767		14.3	35.0
Phenanthrene	1.072	1.120		-4.5	35.0
Anthracene	0.923	0.934		-1.2	35.0
Acridine	0.472	0.442		6.4	35.0
Carbazole	0.827	0.826		0.1	35.0
Fluoranthene	0.890	0.853		4.2	35.0
Pyrene	0.957	0.932		2.6	35.0
Benzo(A)Anthracene	1.755	1.560		11.1	35.0
Chrysene	1.917	1.798		6.2	35.0
Benzo(B)Fluoranthene	1.734	1.546		10.8	35.0
Benzo(K)Fluoranthene	1.542	1.507		2.3	35.0
Benzo(E)Pyrene	1.575	1.491		5.3	35.0
Benzo(A)Pyrene	1.333	1.303		2.3	35.0
Perylene	1.331	1.379		-3.6	35.0
Indeno(1,2,3-CD)Pyrene	1.285	1.208		6.0	35.0
Dibenz(A,H)Anthracene	1.129	1.041		7.8	35.0
Benzo(G,H,I)Perylene	1.216	1.141		6.2	35.0
Naphthalene-d8	1.721	1.882		-9.4	35.0
Fluorene-d10	1.044	1.043		0.1	35.0
Chrysene-d12	1.537	1.198		22.1	35.0

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

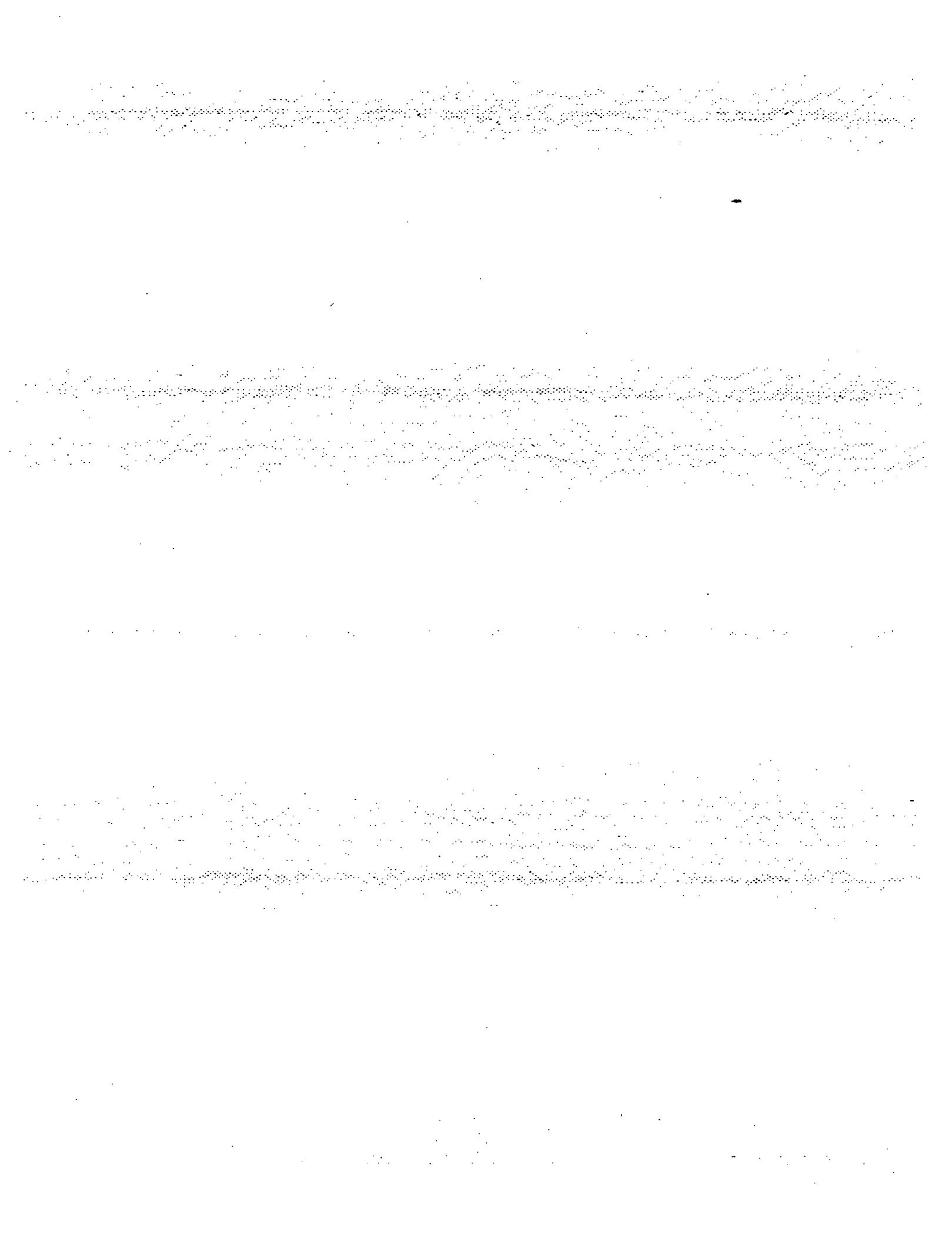
o Code: ENSECO Case No.: 26507 SAS No.: SDG No.:

Instrument ID: 4500-C Calibration date: 12/12/92 Time: 1425

Lab File ID: C6998 Init. Calib. Date(s): 12/10/92 12/10/92

Init. Calib. Times: 0947 1310

COMPOUND	RRF	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.080	1.375		-27.3	35.0
2,3-Dihydroindene	0.992	1.102		-11.1	35.0
1H-Indene	1.784	2.136		-19.7	35.0
Naphthalene	2.341	2.595		-10.8	35.0
Benzo(B)Thiophene	1.543	1.661		-7.6	35.0
Quinoline	0.891	0.789		11.4	35.0
1H-Indole	1.218	0.988		18.9	35.0
2-Methylnaphthalene	1.140	1.118		1.9	35.0
1-Methylnaphthalene	1.540	1.513		1.8	35.0
Biphenyl	1.433	1.664		-16.1	35.0
Acenaphthylene	1.907	2.006		-5.2	35.0
Acenaphthene	1.243	1.396		-12.3	35.0
Dibenzofuran	1.658	1.686		-1.7	35.0
Fluorene	1.530	1.542		-0.8	35.0
Dibenzothiophene	0.895	0.841		6.0	35.0
Phenanthrene	1.072	1.093		-2.0	35.0
Anthracene	0.923	0.884		4.2	35.0
Acridine	0.472	0.412		12.7	35.0
Carbazole	0.827	0.713		13.8	35.0
Fluoranthene	0.890	0.784		11.9	35.0
Pyrene	0.957	0.984		-2.8	35.0
Benzo(A)Anthracene	1.755	1.619		7.7	35.0
Chrysene	1.917	1.909		0.4	35.0
Benzo(B)Fluoranthene	1.734	1.620		6.6	35.0
Benzo(K)Fluoranthene	1.542	1.715		-11.2	35.0
Benzo(E)Pyrene	1.575	1.726		-9.6	35.0
Benzo(A)Pyrene	1.333	1.438		-7.9	35.0
Perylene	1.331	1.057		20.6	35.0
Indeno(1,2,3-CD)Pyrene	1.285	1.422		-10.7	35.0
Dibenzo(A,H)Anthracene	1.129	1.209		-7.1	35.0
Benzo(G,H,I)Perylene	1.216	1.298		-6.7	35.0
<hr/>					
Naphthalene-d8	1.721	1.821		-5.8	35.0
Fluorene-d10	1.044	0.990		5.2	35.0
Chrysene-d12	1.537	1.086		29.3	35.0



7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Instrument ID: 4500-C

Calibration date: 12/15/92 Time: 1222

Lab File ID: C7019

Init. Calib. Date(s): 12/10/92 12/10/92

Init. Calib. Times: 0947 1310

COMPOUND	RRF	RRF40	MIN RRF	%D	MAX %D
2,3-Dibenzofuran	1.080	1.106		-2.4	35.0
2,3-Dihydroindene	0.992	1.110		-11.9	35.0
1H-Indene	1.784	1.871		-4.9	35.0
Naphthalene	2.341	2.502		-6.9	35.0
Benzo(B)Thiophene	1.543	1.460		5.4	35.0
Quinoline	0.891	0.533		40.2	35.0
1H-Indole	1.218	1.031		15.4	35.0
2-Methylnaphthalene	1.140	1.059		7.1	35.0
1-Methylnaphthalene	1.540	1.407		8.6	35.0
Biphenyl	1.433	1.468		-2.4	35.0
Acenaphthylene	1.907	1.875		1.7	35.0
Acenaphthene	1.243	1.262		-1.5	35.0
Dibenzofuran	1.658	1.374		17.1	35.0
Fluorene	1.530	1.284		16.1	35.0
Dibenzothiophene	0.895	0.808		9.7	35.0
Phenanthrene	1.072	0.893		16.7	35.0
Anthracene	0.923	0.806		12.7	35.0
Acridine	0.472	0.388		17.8	35.0
Carbazole	0.827	0.742		10.3	35.0
Fluoranthene	0.890	0.803		9.8	35.0
Pyrene	0.957	0.824		13.9	35.0
Benzo(A)Anthracene	1.755	1.512		13.8	35.0
Chrysene	1.917	1.816		5.3	35.0
Benzo(B)Fluoranthene	1.734	1.492		14.0	35.0
Benzo(K)Fluoranthene	1.542	1.696		-10.0	35.0
Benzo(E)Pyrene	1.575	1.368		13.1	35.0
Benzo(A)Pyrene	1.333	0.821		38.4	35.0
Perylene	1.331	1.394		-4.7	35.0
Indeno(1,2,3-CD)Pyrene	1.285	1.098		14.6	35.0
Dibenz(A,H)Anthracene	1.129	0.934		17.3	35.0
Benzo(G,H,I)Perylene	1.216	1.086		10.7	35.0
<hr/>					
Naphthalene-d8	1.721	1.685		2.1	35.0
Fluorene-d10	1.044	0.763		26.9	35.0
Chrysene-d12	1.537	1.650		-7.4	35.0

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Lab File ID (Standard): C6984

Date Analyzed: 12/11/92

Instrument ID: 4500-C

Time Analyzed: 1006

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	278658	15.49	498403	19.20	225652	28.96
UPPER LIMIT	557316	15.99	996806	19.70	451304	29.46
LOWER LIMIT	139329	14.99	249202	18.70	112826	28.46
EPA SAMPLE NO.						
01 26507-01	365200	15.49	711667	19.19	270304	28.96
02 26507-01DU	403092	15.49	730006	19.19	250921	28.94
03 26507-01FB	332335	15.52	605260	19.21	172353	28.97
04 26507-02	344178	15.50	603789	19.21	232838	28.96
05 26507-02DU	327741	15.52	596068	19.21	205265	28.96
06 26507-03	407625	15.49	724183	19.19	206901	28.94
07 26507-04	357330	15.50	627228	19.20	202859	28.96
08 26507-05	354649	15.50	658480	19.20	184845	28.96
09 26507-01MS	382875	15.49	707391	19.19	222243	28.94
10 26507-01MSD	364228	15.47	661985	19.18	187573	28.92
11 BLK01	268824	15.50	479090	19.21	159000	28.96
12 BLK02	289481	15.49	517717	19.20	157462	28.96

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO Case No.: 26507

SAS No.:

SDG No.:

Lab File ID (Standard): C6998

Date Analyzed: 12/12/92

Instrument ID: 4500-C

Time Analyzed: 1425

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	252267	15.44	462572	19.16	179560	28.92
UPPER LIMIT	504534	15.94	924144	19.66	359120	29.42
LOWER LIMIT	126134	14.94	231786	18.66	89780	28.42
EPA SAMPLE NO.						
01 26507-01DUDL	297848	15.47	583200	19.18	226705	28.92

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

b Name: ENSECO

Contract:

Code: ENSECO

Case No.: 26507

SAS No.:

SDG No.:

Lab File ID (Standard): C7019

Date Analyzed: 12/15/92

Instrument ID: 4500-C

Time Analyzed: 1222

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	236674	15.57	398047	19.30	112173	29.07
UPPER LIMIT	473348	16.07	796094	19.80	224346	29.57
LOWER LIMIT	118337	15.07	190024	18.80	56086	28.57
EPA SAMPLE NO.						
01 BLK03	251881	15.54	444820	19.26	153465	29.04

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.



Enseco - RMAL Project Number 026521

Introduction

Nine aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on December 02, 1992. The samples were logged in under RMAL project number 026521. Sample GAC-SLP15FBDEX-120192 was extracted and held per the April 1990 QAPP. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. The samples were analyzed for low level part-per-trillion (ppt) polynuclear aromatic hydrocarbons (PAH).

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

PPT PAH

26521-0002MS/SD matrix spike percent recovery for Quinoline was reported outside of QC limits due to an interference present in the sample. Quantitation was checked and no further action was taken. Fluorene was reported outside of QC limits, it is very difficult to achieve acceptable percent recovery, when sample -0002 has Fluorene present approximately four times the concentration of the amount spiked into -0002MS/SD.

Case Narrative - RMAL #026521
December 23, 1992
Page Two

Sample 026521-0001 showed target compounds above the upper calibration range. The sample was reanalyzed at dilutions. Both the original and reanalysis data are reported for this sample.

The 4800 ng/ml and the 2400 ng/ml standards had excessive saturation, therefore they were not used as the upper range for the 5-point calibration curve. Instead, the calibration curve used was, 20 ng/ml, 40 ng/ml, 240 ng/ml, 600 ng/ml, and 1200 ng/ml.

All samples associated with project 026521 show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion. These compounds are flagged with the letter (R) on the data sheets (Form I) as per the 1990 QAPP.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Julieann L. Kramer
Julieann L. Kramer
Program Manager

Date: Dec 29, 1992

Approved by: Mark Dymerski
Mark Dymerski
Technical Manager

Date: 1-4-93

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Received Time	Received Date
026521-0001-SA	GAC-SLP15FEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0002-SA	GAC-SLP15TEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0002-DU	GAC-SLP15TDEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0002-FB	GAC-SLP15FBEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0002-FD	GAC-SLP15FBDEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0002-MS	GAC-SLP15MSEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0002-SD	GAC-SLP15MSDEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0003-SA	GAC-SLP4FEX-120192	AQUEOUS	01 DEC 92		02 DEC 92
026521-0004-SA	GAC-SLP4TEX-120192	AQUEOUS	01 DEC 92		02 DEC 92

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 026521	Group Code	Analysis Description	Custom Test?
0001 - 0002, 0002 - 0004	A	Polynuclear Aromatic Hydrocarbons, SIM Low Level Prep - PAH/SIM by GC/MS Low Level	N N
0002	B	Prep - PAH/SIM by GC/MS Low Level	N



Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.



Qualifier Codes and Their Usage

Page Two

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polycyclic aromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

ENSECO CLIENT PROJECT				SAMPLE SAFE™ CONDITIONS			
CITY F ST LOUIS PARK (WATER DEPT)				PACKED BY <i>MZB</i>		SEAL NUMBER	
				SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY		CONDITION OF CONTENTS	
SAMPLING COMPANY <i>SAFE</i>				SEALED FOR SHIPPING BY <i>MZB</i>		INITIAL CONTENTS TEMP. °C	
SAMPLING SITE <i>SPRING</i>				SEAL NUMBER	SAMPLING STATUS <input type="checkbox"/> Done <input checked="" type="checkbox"/> Continuing Until		
TEAM LEADER <i>MZB</i>				SEAL INTACT UPON RECEIPT BY LAB. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB. # 3345 8.2 °C		
DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS	
11-1-92		GAC-SLP15FEX-120192 01 SA	IXL AMBER	6	PPT PAH	EXTENDED PAH	
11-1-92		GAC-SLP15TEX-120192 02 SA	IXL AMBER	6	PPT PAH	EXTENDED PAH	
11-1-92		GAC-SLP15TDX-120192 02 DU	IXL AMBER	6	PPT PAH	EXTENDED PAH	
CUSTODY TRANSFERS PRIOR TO SHIPPING				SHIPPING DETAILS			
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>MZB</i>			
				METHOD OF SHIPMENT <i>FED EX</i>		AIRBILL NUMBER 2103420583	
				RECEIVED FOR LAB <i>RMAIL</i>	SIGNED <i>K. Herman</i>	DATE/TIME 12/2/92 090	
				ENSECO PROJECT NUMBER 26521			



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

ENSECO CLIENT <i>CITY OF ST LOUIS PARK (WATER DEPT)</i>				SAMPLE SAFE™ CONDITIONS				
PROJECT <i>SIGNER</i>				PACKED BY <i>MZB</i>	SEAL NUMBER			
				SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY	CONDITION OF CONTENTS			
SAMPLING COMPANY <i>SIGNER</i>				SEALED FOR SHIPPING BY <i>MZB</i>	INITIAL CONTENTS TEMP. <i>8.2 °C</i>			
SAMPLING SITE <i>ST MZE</i>				SEAL NUMBER	SAMPLING STATUS <input type="checkbox"/> Done <input type="checkbox"/> Continuing Until			
TEAM LEADER <i>MZB</i>				SEAL INTACT UPON RECEIPT BY LAB. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CONTENTS TEMPERATURE UPON RECEIPT BY LAB. <i>#3054 8.2 °C</i>			
DATE	TIME	SAMPLE ID/DESCRIPTION		SAMPLE TYPE <i>02FB SA 02FD</i>	# CONTAINERS <i>6</i>	ANALYSIS PARAMETERS <i>PPT PAH</i>	REMARKS <i>EXTENDED 12/4</i>	
12-1-92		GAC-SLP15FBEX-120192		<i>03FB</i>	<i>IXL AMBER</i>	<i>6</i>	<i>PPT PAH</i>	<i>EXTENDED 12/4</i>
12-1-92		GAC-SLP15FDDEX-120192		<i>03FD</i>	<i>IXL AMBER</i>	<i>6</i>	<i>PPT PAH</i>	<i>EXTENDED 12/4</i>
12-1-92		GAC-SLP15MSLEX-120192		<i>03MS</i>	<i>IXL AMBER</i>	<i>6</i>	<i>PPT PAH</i>	<i>EXTENDED 12/4</i>
				<i>02</i>				
CUSTODY TRANSFERS PRIOR TO SHIPPING				SHIPPING DETAILS				
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>MZB</i>				
				METHOD OF SHIPMENT <i>FED EX</i>				
				AIRBILL NUMBER <i>2103420583</i>				
				RECEIVED FOR LAB <i>RMAL</i>	SIGNED <i>K. Hermann</i>	DATE/TIME <i>12/2/92 0900</i>		
				ENSECO PROJECT NUMBER <i>26521</i>				



Rocky Mountain Analytical Laboratory
4955 Yarrow Street
Arvada, CO 80002
303/421-6611 FAX: 303/431-7171

CHAIN OF CUSTODY

CUSTODY TRANSFERS PRIOR TO SHIPPING				SHIPPING DETAILS		
RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME	DELIVERED TO SHIPPER BY <i>MZB</i>		
				METHOD OF SHIPMENT <i>FED EX</i>	AIRBILL NUMBER <i>2103420553</i>	
				RECEIVED FOR LAB <i>RMAIL</i>	SIGNED <i>K. Hermann</i>	DATE/TIME <i>12/2/92 0900</i>
				ENSECO PROJECT NUMBER <i>26521</i>		

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FOR
CITY OF ST. LOUIS PARK
RMAL PROJECT# 026521

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SUMMARY

DATA

PACKAGE

FOR

CITY OF SAINT LOUIS PARK

RNAL No: 26521

000012

IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-01

Lab Name: ENSECO

Contract No.:

GAC-SLP15FEX-120192
SDG No.:

Lab Code: ENSECO

Case No.: 26521

SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26521-01

Sample wt/vol: 4200 (g/ml) ML

Lab File ID: C7005

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted (Y/N) N

Date Extracted: 12/03/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 12/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO. COMPOUND

Q

271-89-6-----	2,3-Benzofuran	2	J
496-11-7-----	2,3-Dihydroindene	240	ERT
95-13-6-----	1H-Indene	16	
91-20-3-----	Naphthalene	6	BJ
4565-32-6-----	Benzo(B)Thiophene	100	R
91-22-5-----	Quinoline	3	
120-72-9-----	1H-Indole	2	J
91-57-6-----	2-Methylnaphthalene	3	B
90-12-0-----	1-Methylnaphthalene	11	R
92-52-4-----	Biphenyl	65	
208-96-8-----	Acenaphthylene	140	ERT
83-32-9-----	Acenaphthene	230	ET
132-64-9-----	Dibenzofuran	67	
86-73-7-----	Fluorene	180	ET
132-65-0-----	Dibenzothiophene	39	
85-01-8-----	Phenanthrene	15	B
120-12-7-----	Anthracene	13	
260-94-6-----	Acridine	11	R
86-74-8-----	Carbazole	16	
206-44-0-----	Fluoranthene	100	B
129-00-0-----	Pyrene	96	B
56-55-3-----	Benzo(A)Anthracene	4	R
218-01-9-----	Chrysene	3	
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U
56-49-5-----	3-Methylcholanthrene	3	U
57-97-6-----	7,12-Dimethylbenzanthracene	4	U

000062

IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-01DL

Lab Name: ENSECO

Contract No.:

GAC-SLP15FEX-120192

Lab Code: ENSECO Case No.: 26521 SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26521-01DL

Sample wt/vol: 4200 (g/ml) ML

Lab File ID: C7024

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted (Y/N) N

Date Extracted: 12/03/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 12/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.19

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	49	U
496-11-7-----	2,3-Dihydroindene	640	DD
95-13-6-----	1H-Indene	18	D
91-20-3-----	Naphthalene	62	UD
4565-32-6-----	Benzo(B)Thiophene	130	D
91-22-5-----	Quinoline	13	UU
120-72-9-----	1H-Indole	24	UU
91-57-6-----	2-Methylnaphthalene	9	UU
90-12-0-----	1-Methylnaphthalene	13	DJR
92-52-4-----	Biphenyl	76	D
208-96-8-----	Acenaphthylene	220	D
83-32-9-----	Acenaphthene	630	D
132-64-9-----	Dibenzofuran	82	D
86-73-7-----	Fluorene	350	D
132-65-0-----	Dibenzothiophene	43	D
85-01-8-----	Phenanthrene	20	BD
120-12-7-----	Anthracene	11	DR
260-94-6-----	Acridine	27	U
86-74-8-----	Carbazole	13	DJ
206-44-0-----	Fluoranthene	100	BD
129-00-0-----	Pyrene	120	BD
56-55-3-----	Benzo(A)Anthracene	24	U
218-01-9-----	Chrysene	26	U
205-99-2-----	Benzo(B)Fluoranthene	24	U
207-08-9-----	Benzo(K)Fluoranthene	21	U
192-97-2-----	Benzo(E)Pyrene	18	U
50-32-8-----	Benzo(A)Pyrene	21	U
198-55-0-----	Perylene	24	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	20	U
53-70-3-----	Dibenz(A,H)Anthracene	15	U
191-24-2-----	Benzo(G,H,I)Perylene	26	U
56-49-5-----	3-Methylcholanthrene	36	U
57-97-6-----	7,12-Dimethylbenzanthracene	48	U

000112

IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-02

Lab Name: ENSECO Contract No.: GAC-SLP15TEX-120192
 Lab Code: ENSECO Case No.: 26521 SAS No.: SDG No.:
 Matrix: (soil/water) WATER Lab Sample ID: 26521-02
 Sample wt/vol: 4200 (g/ml) ML Lab File ID: C7006
 Level: (low/med) LOW Date Received: 12/02/92
 % Moisture: decanted (Y/N) N Date Extracted: 12/03/92
 Concentrated Extract Volume: 500(uL) Date Analyzed: 12/12/92
 Injection Volume: 2.0(uL) Dilution Factor: 0.119
 GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: NG/L	Q
271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	110	
95-13-6-----	1H-Indene	3	
91-20-3-----	Naphthalene	3	
4565-32-6-----	Benzo(B)Thiophene	17	
91-22-5-----	Quinoline	1	JR
120-72-9-----	1H-Indole	3	
91-57-6-----	2-Methylnaphthalene	2	B
90-12-0-----	1-Methylnaphthalene	2	R
92-52-4-----	Biphenyl	10	
208-96-8-----	Acenaphthylene	29	
83-32-9-----	Acenaphthene	86	
132-64-9-----	Dibenzofuran	8	R
86-73-7-----	Fluorene	37	
132-65-0-----	Dibenzothiophene	5	R
85-01-8-----	Phenanthrene	5	B
120-12-7-----	Anthracene	2	
260-94-6-----	Acridine	1	JR
86-74-8-----	Carbazole	2	
206-44-0-----	Fluoranthene	12	B
129-00-0-----	Pyrene	12	B
56-55-3-----	Benzo(A)Anthracene	2	UU
218-01-9-----	Chrysene	3	UU
205-99-2-----	Benzo(B)Fluoranthene	2	UU
207-08-9-----	Benzo(K)Fluoranthene	2	UU
192-97-2-----	Benzo(E)Pyrene	2	UU
50-32-8-----	Benzo(A)Pyrene	2	UU
198-55-0-----	Perylene	2	UU
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	UU
53-70-3-----	Dibenz(A,H)Anthracene	2	UU
191-24-2-----	Benzo(G,H,I)Perylene	3	UU
56-49-5-----	3-Methylcholanthrene	3	UU
57-97-6-----	7,12-Dimethylbenzanthracene	4	UU

000162

IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-02DU

Lab Name: ENSECO

Contract No.:

GAC-SLP15TDEX-120192

Lab Code: ENSECO Case No.: 26521 SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26521-02DU

Sample wt/vol: 4200 (g/ml) ML

Lab File ID: C7007

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted (Y/N) N

Date Extracted: 12/03/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 12/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO. COMPOUND Q

271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	120	
95-13-6-----	1H-Indene	3	
91-20-3-----	Naphthalene	3	
4565-32-6-----	Benzo(B)Thiophene	19	BJ
91-22-5-----	Quinoline	1	J
120-72-9-----	1H-Indole	3	
91-57-6-----	2-Methylnaphthalene	2	B
90-12-0-----	1-Methylnaphthalene	3	R
92-52-4-----	Biphenyl	11	
208-96-8-----	Acenaphthylene	32	
83-32-9-----	Acenaphthene	94	
132-64-9-----	Dibenzofuran	9	R
86-73-7-----	Fluorene	40	
132-65-0-----	Dibenzothiophene	5	R
85-01-8-----	Phenanthrene	5	B
120-12-7-----	Anthracene	2	
260-94-6-----	Acridine	2	JR
86-74-8-----	Carbazole	2	
206-44-0-----	Fluoranthene	13	B
129-00-0-----	Pyrene	13	B
56-55-3-----	Benzo(A)Anthracene	2	UU
218-01-9-----	Chrysene	3	UU
205-99-2-----	Benzo(B)Fluoranthene	2	UU
207-08-9-----	Benzo(K)Fluoranthene	2	UU
192-97-2-----	Benzo(E)Pyrene	2	UU
50-32-8-----	Benzo(A)Pyrene	2	UU
198-55-0-----	Perylene	2	UU
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	UU
53-70-3-----	Dibenz(A,H)Anthracene	2	UU
191-24-2-----	Benzo(G,H,I)Perylene	3	UU
56-49-5-----	3-Methylcholanthrene	3	UU
57-97-6-----	7,12-Dimethylbenzanthracene	4	UU

000213
IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-02FB

Lab Name: ENSECO Contract No.: GAC-SLP15FBEX-120192
 Lab Code: ENSECO Case No.: 26521 SAS No.: SDG No.:
 Matrix: (soil/water) WATER Lab Sample ID: 26521-02FB
 Sample wt/vol: 4200 (g/ml) ML Lab File ID: C7008
 Level: (low/med) LOW Date Received: 12/02/92
 % Moisture: decanted (Y/N) N Date Extracted: 12/04/92
 Concentrated Extract Volume: 500(uL) Date Analyzed: 12/12/92
 Injection Volume: 2.0(uL) Dilution Factor: 0.119
 GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: NG/L		
			Q	
271-89-6-----	2,3-Benzofuran	5		U
496-11-7-----	2,3-Dihydroindene	1		J
95-13-6-----	1H-Indene	0.9		J
91-20-3-----	Naphthalene	11		B
4565-32-6-----	Benzo(B)Thiophene	0.9		U
91-22-5-----	Quinoline	1		U
120-72-9-----	1H-Indole	2		U
91-57-6-----	2-Methylnaphthalene	8		B
90-12-0-----	1-Methylnaphthalene	1		J
92-52-4-----	Biphenyl	4		U
208-96-8-----	Acenaphthylene	5		U
83-32-9-----	Acenaphthene	5		R
132-64-9-----	Dibenzofuran	5		R
86-73-7-----	Fluorene	3		
132-65-0-----	Dibenzothiophene	1		U
85-01-8-----	Phenanthrene	3		B
120-12-7-----	Anthracene	1		U
260-94-6-----	Acridine	3		U
86-74-8-----	Carbazole	2		U
206-44-0-----	Fluoranthene	1		BJ
129-00-0-----	Pyrene	3		B
56-55-3-----	Benzo(A)Anthracene	2		U
218-01-9-----	Chrysene	3		U
205-99-2-----	Benzo(B)Fluoranthene	2		U
207-08-9-----	Benzo(K)Fluoranthene	2		U
192-97-2-----	Benzo(E)Pyrene	2		U
50-32-8-----	Benzo(A)Pyrene	2		U
198-55-0-----	Perylene	2		U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2		U
53-70-3-----	Dibenz(A,H)Anthracene	2		U
191-24-2-----	Benzo(G,H,I)Perylene	3		U
56-49-5-----	3-Methylcholanthrene	3		U
57-97-6-----	7,12-Dimethylbenzanthracene	4		U

000264

1X
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-03

Lab Name: ENSECO Contract No.: GAC-SLP4FEX-120192
 Lab Code: ENSECO Case No.: 26521 SAS No.: SDG No.:
 Matrix: (soil/water) WATER Lab Sample ID: 26521-03
 Sample wt/vol: 4200 (g/ml) ML Lab File ID: C7020
 Level: (low/med) LOW Date Received: 12/02/92
 % Moisture: decanted (Y/N) N Date Extracted: 12/04/92
 Concentrated Extract Volume: 500(uL) Date Analyzed: 12/15/92
 Injection Volume: 2.0(uL) Dilution Factor: 0.119
 GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: NG/L	
			Q
271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	46	
95-13-6-----	1H-Indene	0.9	
91-20-3-----	Naphthalene	13	BR
4565-32-6-----	Benzo(B)Thiophene	5	
91-22-5-----	Quinoline	3	
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	5	B
90-12-0-----	1-Methylnaphthalene	2	R
92-52-4-----	Biphenyl	2	JR
208-96-8-----	Acenaphthylene	1	J
83-32-9-----	Acenaphthene	27	
132-64-9-----	Dibenzofuran	1	R
86-73-7-----	Fluorene	1	R
132-65-0-----	Dibenzothiophene	1	RU
85-01-8-----	Phenanthrene	6	B
120-12-7-----	Anthracene	1	JR
260-94-6-----	Acridine	3	R
86-74-8-----	Carbazole	7	R
206-44-0-----	Fluoranthene	3	B
129-00-0-----	Pyrene	5	B
56-55-3-----	Benzo(A)Anthracene	2	UU
218-01-9-----	Chrysene	3	UU
205-99-2-----	Benzo(B)Fluoranthene	2	UU
207-08-9-----	Benzo(K)Fluoranthene	2	UU
192-97-2-----	Benzo(E)Pyrene	2	UU
50-32-8-----	Benzo(A)Pyrene	2	UU
198-55-0-----	Perylene	2	UU
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	UU
53-70-3-----	Dibenz(A,H)Anthracene	2	UU
191-24-2-----	Benzo(G,H,I)Perylene	3	UU
56-49-5-----	3-Methylcholanthrene	3	UU
57-97-6-----	7,12-Dimethylbenzanthracene	4	UU

000315

PT 2-22-93
SIC000IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-04

GAC-SLP4TEX-120192

SDG No.:

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 26521 SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26521-04

Sample wt/vol: 4200 (g/ml) ML

Lab File ID: C7021

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted (Y/N) N

Date Extracted: 12/04/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 12/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO. COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	4	
.95-13-6-----	1H-Indene	0.9	
91-20-3-----	Naphthalene	8	B
4565-32-6-----	Benzo(B)Thiophene	0.9	U
91-22-5-----	Quinoline	4	
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	3	B
90-12-0-----	1-Methylnaphthalene	1	J
92-52-4-----	Biphenyl	4	JU
208-96-8-----	Acenaphthylene	1	U
83-32-9-----	Acenaphthene	1	U
132-64-9-----	Dibenzofuran	1	R
86-73-7-----	Fluorene	1	
132-65-0-----	Dibenzothiophene	1	U
85-01-8-----	Phenanthrene	3	B
120-12-7-----	Anthracene	1	UU
260-94-6-----	Acridine	3	U
86-74-8-----	Carbazole	2	U
206-44-0-----	Fluoranthene	1	BJ
129-00-0-----	Pyrene	1	BJ
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U
56-49-5-----	3-Methylcholanthrene	3	U
57-97-6-----	7,12-Dimethylbenzanthracene	4	U

IX **000816**
 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-02MS

Lab Name: ENSECO

Contract No.:

GAC-SLP15MSEX-120192

Lab Code: ENSECO Case No.: 26521 SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26521-02MS

Sample wt/vol: 4200 (g/ml) ML

Lab File ID: C7010

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted (Y/N) N

Date Extracted: 12/04/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 12/13/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	150	
95-13-6-----	1H-Indene	10	
91-20-3-----	Naphthalene	10	
4565-32-6-----	Benzo(B)Thiophene	21	
91-22-5-----	Quinoline	24	
120-72-9-----	1H-Indole	3	
91-57-6-----	2-Methylnaphthalene	10	B
90-12-0-----	1-Methylnaphthalene	3	R
92-52-4-----	Biphenyl	13	
208-96-8-----	Acenaphthylene	39	
83-32-9-----	Acenaphthene	110	
132-64-9-----	Dibenzofuran	11	R
86-73-7-----	Fluorene	57	
132-65-0-----	Dibenzothiophene	5	R
85-01-8-----	Phenanthrene	4	B
120-12-7-----	Anthracene	2	
260-94-6-----	Acridine	2	JR
86-74-8-----	Carbazole	3	R
206-44-0-----	Fluoranthene	15	B
129-00-0-----	Pyrene	15	B
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	5	
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U
56-49-5-----	3-Methylcholanthrene	3	U
57-97-6-----	7,12-Dimethylbenzanthracene	4	U

000867

IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26521-02MSD

Lab Name: ENSECO

Contract No.:

GAC-SLP15MSDEX-120192
SDG No.:

Lab Code: ENSECO

Case No.: 26521 SAS No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26521-02MSD

Sample wt/vol: 4200 (g/ml) ML

Lab File ID: C7011

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted (Y/N) N

Date Extracted: 12/04/92

Concentrated Extract Volume: .500(uL)

Date Analyzed: 12/13/92

Injection Volume: 2.0(uL)

Dilution Factor: 0.119

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO. COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	150	
95-13-6-----	1H-Indene	10	
91-20-3-----	Naphthalene	11	
4565-32-6-----	Benzo(B)Thiophene	22	
91-22-5-----	Quinoline	24	
120-72-9-----	1H-Indole	3	
91-57-6-----	2-Methylnaphthalene	11	B
90-12-0-----	1-Methylnaphthalene	3	R
92-52-4-----	Biphenyl	14	
208-96-8-----	AcenaphthyTene	40	
83-32-9-----	Acenaphthene	110	
132-64-9-----	Dibenzofuran	12	R
86-73-7-----	Fluorene	58	
132-65-0-----	Dibenzothiophene	6	R
85-01-8-----	Phenanthrene	5	B
120-12-7-----	Anthracene	2	
260-94-6-----	Acridine	2	JR
86-74-8-----	Carbazole	3	
206-44-0-----	Fluoranthene	16	B
129-00-0-----	Pyrene	16	B
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	4	
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	1	J
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U
56-49-5-----	3-Methylcholanthrene	3	U
57-97-6-----	7,12-Dimethylbenzanthracene	4	U

000716
IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK01

Lab Name: ENSECO Contract No.:

Lab Code: ENSECO Case No.: 26521 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL120392

Sample wt/vol: 4000 (g/ml) ML Lab File ID: C7023

Level: (low/med) LOW Date Received:

% Moisture: decanted (Y/N) N Date Extracted: 12/03/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 12/15/92

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO.	COMPOUND	Q
271-89-6-----	2,3-Benzofuran	5
496-11-7-----	2,3-Dihydroindene	1
95-13-6-----	1H-Indene	0.9
91-20-3-----	Naphthalene	2
4565-32-6-----	Benzo(B)Thiophene	0.9
91-22-5-----	Quinoline	1
120-72-9-----	1H-Indole	2
91-57-6-----	2-Methylnaphthalene	2
90-12-0-----	1-Methylnaphthalene	2
92-52-4-----	Biphenyl	4
208-96-8-----	Acenaphthylene	1
83-32-9-----	Acenaphthene	1
132-64-9-----	Dibenzofuran	1
86-73-7-----	Fluorene	1
132-65-0-----	Dibenzothiophene	1
85-01-8-----	Phenanthrene	4
120-12-7-----	Anthracene	1
260-94-6-----	Acridine	3
86-74-8-----	Carbazole	2
206-44-0-----	Fluoranthene	1
129-00-0-----	Pyrene	1
56-55-3-----	Benzo(A)Anthracene	2
218-01-9-----	Chrysene	3
205-99-2-----	Benzo(B)Fluoranthene	2
207-08-9-----	Benzo(K)Fluoranthene	2
192-97-2-----	Benzo(E)Pyrene	2
50-32-8-----	Benzo(A)Pyrene	2
198-55-0-----	Perylene	2
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2
53-70-3-----	Dibenz(A,H)Anthracene	2
191-24-2-----	Benzo(G,H,I)Perylene	3
56-49-5-----	3-Methylcholanthrene	3
57-97-6-----	7,12-Dimethylbenzanthracene	4

000765

IX
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK02

Lab Name: ENSECO

Contract No.:

Lab Code: ENSECO Case No.: 26521 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: BL120492

Sample wt/vol: 4000 (g/ml) ML Lab File ID: C7022

Level: (low/med) LOW Date Received:

% Moisture: decanted (Y/N) N Date Extracted: 12/04/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 12/15/92

Injection Volume: 2.0(uL) Dilution Factor: 0.125

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS: NG/L

CAS NO.

COMPOUND

Q

271-89-6-----	2,3-Benzofuran	5	U
496-11-7-----	2,3-Dihydroindene	1	U
95-13-6-----	1H-Indene	0.9	U
91-20-3-----	Naphthalene	2	J
4565-32-6-----	Benzo(B)Thiophene	0.9	JU
91-22-5-----	Quinoline	1	JU
120-72-9-----	1H-Indole	2	U
91-57-6-----	2-Methylnaphthalene	2	U
90-12-0-----	1-Methylnaphthalene	2	U
92-52-4-----	Biphenyl	4	U
208-96-8-----	Acenaphthylene	1	U
83-32-9-----	Acenaphthene	1	U
132-64-9-----	Dibenzofuran	1	UU
86-73-7-----	Fluorene	1	UU
132-65-0-----	Dibenzothiophene	1	U
85-01-8-----	Phenanthrene	4	U
120-12-7-----	Anthracene	1	U
260-94-6-----	Acridine	3	U
86-74-8-----	Carbazole	2	U
206-44-0-----	Fluoranthene	1	J
129-00-0-----	Pyrene	2	U
56-55-3-----	Benzo(A)Anthracene	2	U
218-01-9-----	Chrysene	3	U
205-99-2-----	Benzo(B)Fluoranthene	2	U
207-08-9-----	Benzo(K)Fluoranthene	2	U
192-97-2-----	Benzo(E)Pyrene	2	U
50-32-8-----	Benzo(A)Pyrene	2	U
198-55-0-----	Perylene	2	U
193-39-5-----	Indeno(1,2,3-CD)Pyrene	2	U
53-70-3-----	Dibenz(A,H)Anthracene	2	U
191-24-2-----	Benzo(G,H,I)Perylene	3	U
56-49-5-----	3-Methylcholanthrene	3	U
57-97-6-----	7,12-Dimethylbenzanthracene	4	U

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26521

SAS No.:

SDG No.:

EPA SAMPLE NO.	S1 (NAP) #	S2 (FLU) #	S3 (CHR) #	TOT OUT
01 26521-01	75	88	56	0
02 26521-01DL	88	89	79	0
03 26521-02	80	82	42	0
04 26521-02DU	86	88	60	0
05 26521-02FB	91	87	98	0
06 26521-03	100	101	41	0
07 26521-04	90	101	37	0
08 26521-02MS	87	92	58	0
09 26521-02MSD	81	88	48	0
10 BLK02	87	102	71	0
11 BLK01	98	108	84	0

QC LIMITS

S1 (NAP) = Naphthalene-d8

(14-108)

S2 (FLU) = Fluorene-d10

(41-162)

S3 (CHR) = Chrysene-d12

(10-118)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

-b Name: ENSECO

Contract:

Code: ENSECO

Case No.: 26521

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: 26521-02

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC #	QC LIMITS REC.
1H-Indene	9.520	2.701	10.40	81	20-150
Naphthalene	9.520	2.844	9.687	72	20-150
Quinoline	9.520	1.345	24.16	240 *	20-150
2-Methylnaphthalene	9.520	1.952	10.19	87	20-150
Fluorene	9.520	36.89	56.88	210 *	20-150
Chrysene	9.520	ND	5.284	56	20-150
Benzo(E)Pyrene	9.520	ND	1.618	17	10-150

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1H-Indene	9.520	10.25	79	2	28	20-150
Naphthalene	9.520	10.91	85	17	28	20-150
Quinoline	9.520	23.68	235 *	2	28	20-150
?-Methylnaphthalene	9.520	11.42	99	13	28	20-150
Fluorene	9.520	57.83	220 *	5	28	20-150
Chrysene	9.520	4.451	47	17	28	20-150
Benzo(E)Pyrene	9.520	0.971	10	52 *	28	10-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

Name: ENSECO	Contract:	BLK02	
Lab Code: ENSECO	Case No.: 26521	SAS No.:	SDG No.:
Lab File ID: C7022		Lab Sample ID: BL120492	
Instrument ID: 4500-C		Date Extracted: 12/04/92	
Matrix: (soil/water) WATER		Date Analyzed: 12/15/92	
Level: (low/med) LOW		Time Analyzed: 1636	

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	26521-02FB	26521-02FB	C7008	12/12/92
02	26521-03	26521-03	C7020	12/15/92
03	26521-04	26521-04	C7021	12/15/92
04	26521-02MS	26521-02MS	C7010	12/13/92
05	26521-02MSD	26521-02MSD	C7011	12/13/92

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

Name: ENSECO

Contract:

Lab Code: ENSECO Case No.: 26521 SAS No.: SDG No.:

Lab File ID: C7023 Lab Sample ID: BL120392

Instrument ID: 4500-C Date Extracted: 12/03/92

Matrix: (soil/water) WATER Date Analyzed: 12/15/92

Level: (low/med) LOW Time Analyzed: 1725

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	26521-01	26521-01	C7005	12/12/92
02	26521-01DL	26521-01DL	C7024	12/15/92
03	26521-02	26521-02	C7006	12/12/92
04	26521-02DU	26521-02DU	C7007	12/12/92

COMMENTS:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Lab Name: ENSECO

Contract:

Code: ENSECO

Case No.: 26521

SAS No.:

SDG No.:

Lab File ID: BC121092T

Run Date: 12/10/92

Instrument ID: 4500-C

Run Time: 0947

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD020	20_PPB_PAH	C6956	12/10/92	0947
02 SSTD160	160_PPB_PAH	C6957	12/10/92	1037
03 SSTD600	600_PPB_PAH	C6958	12/10/92	1127
04 SSTD240	240_PPB_PAH	C6959	12/10/92	1218
05 SSTD040	40_PPB_PAH	C6960	12/10/92	1310

5B
SEMICVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

--b Name: ENSECO

Contract:

Code: ENSECO Case No.: 26521 SAS No.: SDG No.:

Lab File ID: C6998T

Run Date: 12/12/92

Instrument ID: 4500-C

Run Time: 1425

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD040	40_PPB_PAH	C6998	12/12/92	1425
02	26521-01	26521-01	C7005	12/12/92	2057
03	26521-02	26521-02	C7006	12/12/92	2147
04	26521-02DU	26521-02DU	C7007	12/12/92	2237
05	26521-02FB	26521-02FB	C7008	12/12/92	2327
06	26521-02MS	26521-02MS	C7010	12/13/92	0106
07	26521-02MSD	26521-02MSD	C7011	12/13/92	0156

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

Name: ENSECO

Contract:

Code: ENSECO

Case No.: 26521

SAS No.:

SDG No.:

Lab File ID: C7019T

Run Date: 12/15/92

Instrument ID: 4500-C

Run Time: 1222

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD040	40 PPB PAH	C7019	12/15/92	1222
02 26521-03	26521-03	C7020	12/15/92	1457
03 26521-04	26521-04	C7021	12/15/92	1546
04 BLK02	BL120492	C7022	12/15/92	1636
05 BLK01	BL120392	C7023	12/15/92	1725
06 26521-01DL	26521-01DL	C7024	12/15/92	1814

INITIAL CALIBRATION DATA
PAH COMPOUNDS

000367

Lab Name: RMAL

Lab Code: ENSECO

Case No: 26521

Instrument ID: 4500-C

Calibration Date(s): 12/10/92

Maximum % RSD is 35%

Lab File ID: RRF 240= SLPC6959	RRF	20= SLPC6956	RRF	40= SLPC6960			
	RRF	600= SLPC6958	RRF	1200= SLPC6957			
COMPOUND	20 PPB RRF	40 PPB RRF	240PPB RRF	600PPB RRF	1200PPB RRF	AVE RRF	%RSD
2,3-Benzofuran	0.909	1.305	1.072	0.961	1.153	1.080	14.6
2,3-Dihydroindene	0.854	1.208	0.963	0.891	1.044	0.992	14.2
1H-Indene	1.860	2.077	1.693	1.665	1.625	1.784	10.5
Naphthalene	2.248	2.825	2.296	2.589	1.747	2.341	17.3
Benzo(B)Thiophene	1.389	1.768	1.452	1.696	1.408	1.543	11.4
Quinoline	0.657	0.809	0.838	1.063	1.088	0.891	20.4
1H-Indole	1.029	1.243	1.260	1.343	1.217	1.218	9.5
2-Methylnaphthalene	1.115	1.201	1.039	1.199	1.144	1.140	5.9
1-Methylnaphthalene	1.406	1.677	1.582	1.650	1.384	1.540	8.9
Biphenyl	1.392	1.569	1.378	1.587	1.238	1.433	10.2
Acenaphthylene	1.790	1.997	1.881	2.272	1.597	1.907	13.2
Acenaphthene	1.168	1.344	1.180	1.351	1.172	1.243	7.7
Dibenzofuran	1.636	1.767	1.637	1.842	1.410	1.658	9.9
Fluorene	1.470	1.604	1.496	1.687	1.395	1.530	7.5
Dibenzothiophene	0.856	0.983	0.908	0.973	0.754	0.895	10.5
Phenanthrene	1.087	1.210	1.071	1.173	0.819	1.072	14.3
Anthracene	0.820	0.934	0.928	1.078	0.856	0.923	10.7
Acridine	0.277	0.449	0.445	0.589	0.602	0.472	28.0
Carbazole	0.712	0.867	0.854	0.937	0.767	0.827	10.7
Fluoranthene	0.793	0.945	0.869	1.001	0.842	0.890	9.3
Pyrene	0.954	1.048	0.900	1.032	0.849	0.957	8.9
Benzo(A)Anthracene	1.509	1.577	1.726	1.971	1.992	1.755	12.6
Chrysene	1.882	1.811	1.865	2.071	1.957	1.917	5.2
Benzo(B)Fluoranthene	1.586	1.673	1.605	1.933	1.874	1.734	9.2
Benzo(K)Fluoranthene	1.504	1.622	1.454	1.540	1.588	1.542	4.3
Benzo(E)Pyrene	1.449	1.618	1.504	1.642	1.662	1.575	5.9
Benzo(A)Pyrene	1.273	1.347	1.289	1.280	1.476	1.333	6.4
Perylene	1.381	1.422	1.100	1.643	1.110	1.331	17.2
Indeno(1,2,3-CD)Pyrene	1.164	1.319	1.230	1.369	1.344	1.285	6.7
Dibenz(A,H)Anthracene	1.043	1.142	1.080	1.212	1.170	1.129	6.0
Benzo(G,H,I)Perylene	1.209	1.244	1.126	1.271	1.228	1.216	4.5
3-Methylcholanthrene	0.679	0.739	0.705	0.785	0.809	0.743	7.3
Dimethylbenzanthracene	0.778	0.802	0.783	0.861	0.851	0.815	4.7
=====	=====	=====	=====	=====	=====	=====	=====
D8-Naphthalene	1.669	1.983	1.658	1.756	1.537	1.721	9.7
D10-Flourene	0.977	1.060	0.993	1.133	1.057	1.044	6.0
D12-Chrysene	1.746	1.473	1.407	1.539	1.518	1.537	8.3

Dimethylbenzanthracene = 7,12-Dimethylbenzanthracene

**CONTINUING CALIBRATION DATA
PAH COMPOUNDS**

000614

Lab Name: RMAL

Lab Code: ENSECO

Case No:

Instrument ID: 4500-X

Calibration Date(s): 12/12/92 Time: 1425

Lab ID: X1271

Initial Calibration Date: 12/10/92

Maximum %D is 35%

COMPOUND	INITIAL AVE RRF	40 PPB RRF	%D
2,3-Dibenzofuran	1.080	1.375	-27.3
2,3-Dihydroindene	0.992	1.102	-11.1
1H-Indene	1.784	2.136	-19.7
Naphthalene	2.341	2.595	-10.9
Benzo(B)Thiophene	1.543	1.661	-7.6
Quinoline	0.891	0.789	11.4
1H-Indole	1.218	0.988	18.9
2-Methylnaphthalene	1.140	1.118	1.9
1-Methylnaphthalene	1.540	1.513	1.8
Biphenyl	1.433	1.664	-16.1
Acenaphthylene	1.907	2.006	-5.2
Acenaphthene	1.243	1.396	-12.3
Dibenzofuran	1.658	1.686	-1.7
Fluorene	1.530	1.542	-0.8
Dibenzothiophene	0.895	0.841	6.0
Phenanthrene	1.072	1.093	-2.0
Anthracene	0.923	0.884	4.2
Acridine	0.472	0.412	12.7
Carbazole	0.827	0.713	13.8
Fluoranthene	0.890	0.784	11.9
Pyrene	0.957	0.984	-2.8
Benzo(A)Anthracene	1.755	1.619	7.7
Chrysene	1.917	1.909	0.4
Benzo(B)Fluoranthene	1.734	1.620	6.6
Benzo(K)Fluoranthene	1.542	1.715	-11.2
Benzo(E)Pyrene	1.575	1.726	-9.6
Benzo(A)Pyrene	1.333	1.438	-7.9
Perylene	1.331	1.057	20.6
Indeno(1,2,3-CD)Pyrene	1.285	1.422	-10.7
Dibenz(A,H)Anthracene	1.129	1.209	-7.1
Benzo(G,H,I)Perylene	1.216	1.298	-6.7
3-Methylcholanthrene	0.743	0.774	-4.2
Dimethylbenzanthracene	0.851	0.799	2.0
<hr/>			
D8-Naphthalene	1.721	1.821	-5.8
D10-Flourene	1.044	0.990	5.2
D12-Chrysene	1.537	1.086	29.3

Dimethylbenzanthracene = 7,12-Dimethylbenzanthracene

FORM VII

CONTINUING CALIBRATION DATA
PAH COMPOUNDS

000664

Lab Name: RMAL

Lab Code: ENSECO

Case No: 26521

Instrument ID: 4500-X

Calibration Date(s): 12/15/92 Time: 1222

Lab ID: X1271

Initial Calibration Date: 12/10/92

Maximum %D is 35%

COMPOUND	INITIAL AVE RRF	40 PPB RRF	%D
2,3-Dibenzofuran	1.080	1.106	-2.4
2,3-Dihydroindene	0.992	1.110	-11.9
1H-Indene	1.784	1.871	-4.9
Naphthalene	2.341	2.502	-6.9
Benzo(B)Thiophene	1.543	1.460	5.4
Quinoline	0.891	0.533	40.2
1H-Indole	1.218	1.031	15.4
2-Methylnaphthalene	1.140	1.059	7.1
1-Methylnaphthalene	1.540	1.407	8.6
Biphenyl	1.433	1.468	-2.4
Acenaphthylene	1.907	1.875	1.7
Acenaphthene	1.243	1.262	-1.5
Dibenzofuran	1.658	1.374	17.1
Fluorene	1.530	1.284	16.1
Dibenzothiophene	0.895	0.808	9.7
Phenanthrene	1.072	0.893	16.7
Anthracene	0.923	0.806	12.7
Acridine	0.472	0.388	17.8
Carbazole	0.827	0.742	10.3
Fluoranthene	0.890	0.803	9.8
Pyrene	0.957	0.824	13.9
Benzo(A)Anthracene	1.755	1.512	13.8
Chrysene	1.917	1.816	5.3
Benzo(B)Fluoranthene	1.734	1.492	14.0
Benzo(K)Fluoranthene	1.542	1.696	-10.0
Benzo(E)Pyrene	1.575	1.368	13.1
Benzo(A)Pyrene	1.333	1.245	6.6
Perylene	1.331	1.394	-4.7
Indeno(1,2,3-CD)Pyrene	1.285	1.098	14.6
Dibenz(A,H)Anthracene	1.129	0.934	17.3
Benzo(G,H,I)Perylene	1.216	1.086	10.7
3-Methylcholanthrene	0.743	0.661	11.0
Dimethylbenzanthracene	0.815	0.799	2.0
=====	=====	=====	=====
D8-Naphthalene	1.721	1.685	2.1
D10-Flourene	1.044	0.763	26.9
D12-Chrysene	1.537	1.650	-7.4

Dimethylbenzanthracene = 7,12-Dimethylbenzanthracene

FORM VII

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Name: ENSECO

Contract:

Code: ENSECO

Case No.: 26521

SAS No.:

SDG No.:

Lab File ID (Standard): C6998

Date Analyzed: 12/12/92

Instrument ID: 4500-C

Time Analyzed: 1425

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	252267	15.44	461572	19.16	179560	28.92
UPPER LIMIT	504534	15.94	923144	19.66	359120	29.42
LOWER LIMIT	126134	14.94	230786	18.66	89780	28.42
EPA SAMPLE NO.						
01 26521-01	321564	15.45	559097	19.16	210493	28.92
02 26521-02	281333	15.42	496195	19.15	175965	28.91
03 26521-02DU	264833	15.44	476134	19.15	172613	28.91
04 26521-02FB	263062	15.44	486762	19.15	165855	28.91
05 26521-02MS	222273	15.44	422783	19.15	161402	28.91
06 26521-02MSD	213840	15.44	394617	19.15	144986	28.92

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26521

SAS No.:

SDG No.:

Lab File ID (Standard): C7019

Date Analyzed: 12/15/92

Instrument ID: 4500-C

Time Analyzed: 1222

	IS1(ACN) AREA #	RT #	IS2(PHN) AREA #	RT #	IS3(BAP) AREA #	RT #
12 HOUR STD	236674	15.57	398047	19.30	112173	29.07
UPPER LIMIT	473348	16.07	796094	19.80	224346	29.57
LOWER LIMIT	118337	15.07	199024	18.80	56086	28.57
EPA SAMPLE NO.						
01 26521-01DL	242154	15.54	406642	19.28	135987	29.04
02 26521-03	229919	15.67	382044	19.40	157893	29.17
03 26521-04	229044	15.55	403463	19.28	158667	29.06
04 BLK02	252687	15.52	444301	19.25	156741	29.02
05 BLK01	251881	15.54	444820	19.26	153465	29.04

IS1 (ACN) = Acenaphthene-D10

IS2 (PHN) = Phenanthrene-D10

IS3 (BAP) = Benzo(A)Pyrene-D10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.



Enseco - RMAL Project Number 026523

Introduction

Six aqueous samples (includes QC) were received at Enseco Rocky Mountain Analytical Laboratory on December 02, 1992. The samples were logged in under RMAL project number 026523. A cross reference associating the RMAL sample numbers to the actual field sample numbers is included. Sample GAC-SLP15FBDAF-120192 was extracted and held per the April 1990 QAPP. The samples were analyzed for the extended analysis list of components.

Data Quality Assessment

The results contained in this report were reviewed relative to data acceptance criteria as specified in the April, 1990 QAPP for completeness, precision, accuracy, representativeness and defensibility of the data. Unless otherwise stated below, no quality control problems or technical difficulties were encountered which would impact the interpretation or use of data in this report.

EXTENDED LIST PPB

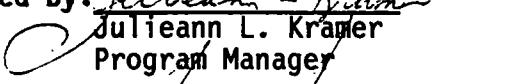
026523-001MS/SD matrix spike recoveries for 4-Nitrophenol were above QC limits by 3%. Since good recovery was achieved for all other spike components (between the range of 50-120%), quantitation was checked and no further action was taken.



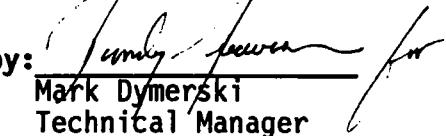
Case Narrative - RMAL #026523
January 13, 1993
Page Two

For this extended list analysis, the following compounds were searched for and not found; Benzo(c)phenanthrene, Dibenz(a,c)anthracene, Dibenzo(a,e)pyrene, Dibenzo(a,h)pyrene, Dibenzo(a,i)pyrene, 7,12-Dimethylbenz(a)anthracene, 3-Methylcholanthrene.

This data package is in compliance with the terms and conditions of the 1990 QAPP, both technically and for completeness, for other than the conditions detailed above.

Reported by: Julieann L. Kramer

Julieann L. Kramer
Program Manager

Date: Jan 13, 1993

Approved by: Mark Dymerski for

Mark Dymerski
Technical Manager

Date: 1-13-93

SAMPLE DESCRIPTION INFORMATION
for
City of St. Louis Park

Lab ID	Client ID	Matrix	Sampled Date	Received Time	Received Date
026523-0001-SA	GAC-SLP15TAF-120192	AQUEOUS	01 DEC 92		02 DEC 92
026523-0001-DU	GAC-SLP15TAFD-120192	AQUEOUS	01 DEC 92		02 DEC 92
026523-0001-FB	GAC-SLP15FBAF-120192	AQUEOUS	01 DEC 92		02 DEC 92
026523-0001-FD	GAC-SLP15FBDAF-120192	AQUEOUS	01 DEC 92		02 DEC 92
026523-0001-MS	GAC-SLP15MSAF-120192	AQUEOUS	01 DEC 92		02 DEC 92
026523-0001-SD	GAC-SLP15MSDAF-120192	AQUEOUS	01 DEC 92		02 DEC 92

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: ENSECO

Contract:

26523-01

Code: ENSECO	Case No.: 26523	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01	
Sample wt/vol:	1000 (g/mL) ML	Lab File ID:	R3400
Level: (low/med)	LOW	Date Received:	12/02/92
% Moisture:	decanted: (Y/N)	Date Extracted:	12/03/92
Concentrated Extract Volume:	1000 (uL)	Date Analyzed:	12/11/92
Injection Volume:	2.0(uL)	Dilution Factor:	1.0
GPC Cleanup: (Y/N)	N	pH:	7.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
108-95-2-----	Phenol	10	U
111-44-4-----	bis(2-Chloroethyl) Ether	10	U
95-57-8-----	2-Chlorophenol	10	U
541-73-1-----	1,3-Dichlorobenzene	10	U
106-46-7-----	1,4-Dichlorobenzene	10	U
95-50-1-----	1,2-Dichlorobenzene	10	U
95-48-7-----	2-Methylphenol	10	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5-----	4-Methylphenol	10	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	10	U
67-72-1-----	Hexachloroethane	10	U
98-95-3-----	Nitrobenzene	10	U
78-59-1-----	Isophorone	10	U
88-75-5-----	2-Nitrophenol	10	U
105-67-9-----	2,4-Dimethylphenol	10	U
111-91-1-----	bis(2-Chloroethoxy)Methane	10	U
120-83-2-----	2,4-Dichlorophenol	10	U
120-82-1-----	1,2,4-Trichlorobenzene	10	U
91-20-3-----	Naphthalene	10	U
106-47-8-----	4-Chloroaniline	10	U
87-68-3-----	Hexachlorobutadiene	10	U
59-50-7-----	4-Chloro-3-Methylphenol	10	U
91-57-6-----	2-Methylnaphthalene	10	U
77-47-4-----	Hexachlorocyclopentadiene	10	U
88-06-2-----	2,4,6-Trichlorophenol	10	U
95-95-4-----	2,4,5-Trichlorophenol	25	U
91-58-7-----	2-Chloronaphthalene	10	U
88-74-4-----	2-Nitroaniline	25	U
131-11-3-----	Dimethyl Phthalate	10	U
208-96-8-----	Acenaphthylene	10	U
606-20-2-----	2,6-Dinitrotoluene	10	U
99-09-2-----	3-Nitroaniline	25	U
83-32-9-----	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26523-01

Name: ENSECO

Contract:

Code: ENSECO	Case No.: 26523	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01	
Sample wt/vol: 1000 (g/mL) ML		Lab File ID: R3400	
Level: (low/med) LOW		Date Received: 12/02/92	
% Moisture: decanted: (Y/N)		Date Extracted: 12/03/92	
Concentrated Extract Volume: 1000 (uL)		Date Analyzed: 12/11/92	
Injection Volume: 2.0 (uL)		Dilution Factor: 1.0	
GPC Cleanup: (Y/N) N		pH: 7.0	

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
51-28-5-----	2,4-Dinitrophenol	25	U
100-02-7-----	4-Nitrophenol	25	U
132-64-9-----	Dibenzofuran	10	U
121-14-2-----	2,4-Dinitrotoluene	10	U
84-66-2-----	Diethylphthalate	10	U
7005-72-3-----	4-Chlorophenyl-phenylether	10	U
86-73-7-----	Fluorene	10	U
100-01-6-----	4-Nitroaniline	25	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	25	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10	U
101-55-3-----	4-Bromophenyl-phenylether	10	U
118-74-1-----	Hexachlorobenzene	10	U
87-86-5-----	Pentachlorophenol	25	U
85-01-8-----	Phenanthren	10	U
120-12-7-----	Anthracene	10	U
86-74-8-----	Carbazole	10	U
84-74-2-----	Di-n-Butylphthalate	10	U
206-44-0-----	Fluoranthene	10	U
129-00-0-----	Pyrene	10	U
85-68-7-----	Butylbenzylphthalate	10	U
91-94-1-----	3,3'-Dichlorobenzidine	10	U
56-55-3-----	Benzo(a)Anthracene	10	U
218-01-9-----	Chrysene	10	U
117-81-7-----	bis(2-Ethylhexyl) Phthalate	10	U
117-84-0-----	Di-n-Octyl Phthalate	10	U
205-99-2-----	Benzo(b)Fluoranthene	10	U
207-08-9-----	Benzo(k)Fluoranthene	10	U
50-32-8-----	Benzo(a)Pyrene	10	U
193-39-5-----	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3-----	Dibenz(a,h)Anthracene	10	U
191-24-2-----	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: ENSECO

Contract:

26523-01DU

Lab Code: ENSECO

Case No.: 26523

SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26523-01DU

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: R3401

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted: (Y/N)

Date Extracted: 12/03/92

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
108-95-2-----	Phenol	10	U
111-44-4-----	bis(2-Chloroethyl)Ether	10	U
95-57-8-----	2-Chlorophenol	10	U
541-73-1-----	1,3-Dichlorobenzene	10	U
106-46-7-----	1,4-Dichlorobenzene	10	U
95-50-1-----	1,2-Dichlorobenzene	10	U
95-48-7-----	2-Methylphenol	10	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5-----	4-Methylphenol	10	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	10	U
67-72-1-----	Hexachloroethane	10	U
98-95-3-----	Nitrobenzene	10	U
78-59-1-----	Isophorone	10	U
88-75-5-----	2-Nitrophenol	10	U
105-67-9-----	2,4-Dimethylphenol	10	U
111-91-1-----	bis(2-Chloroethoxy)Methane	10	U
120-83-2-----	2,4-Dichlorophenol	10	U
120-82-1-----	1,2,4-Trichlorobenzene	10	U
91-20-3-----	Naphthalene	10	U
106-47-8-----	4-Chloroaniline	10	U
87-68-3-----	Hexachlorobutadiene	10	U
59-50-7-----	4-Chloro-3-Methylphenol	10	U
91-57-6-----	2-Methylnaphthalene	10	U
77-47-4-----	Hexachlorocyclopentadiene	10	U
88-06-2-----	2,4,6-Trichlorophenol	10	U
95-95-4-----	2,4,5-Trichlorophenol	25	U
91-58-7-----	2-Chloronaphthalene	10	U
88-74-4-----	2-Nitroaniline	25	U
131-11-3-----	Dimethyl Phthalate	10	U
208-96-8-----	Acenaphthylene	10	U
606-20-2-----	2,6-Dinitrotoluene	10	U
99-09-2-----	3-Nitroaniline	25	U
83-32-9-----	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26523-01DU

> Name: ENSECO Contract:

Lab Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 26523-01DU

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R3401

Level: (low/med) LOW Date Received: 12/02/92

% Moisture: decanted: (Y/N) Date Extracted: 12/03/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
51-28-5-----	2,4-Dinitrophenol	25	U	
100-02-7-----	4-Nitrophenol	25	U	
132-64-9-----	Dibenzofuran	10	U	
121-14-2-----	2,4-Dinitrotoluene	10	U	
84-66-2-----	Diethylphthalate	10	U	
7005-72-3-----	4-Chlorophenyl-phenylether	10	U	
86-73-7-----	Fluorene	10	U	
100-01-6-----	4-Nitroaniline	25	U	
534-52-1-----	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6-----	N-Nitrosodiphenylamine (1)	10	U	
101-55-3-----	4-Bromophenyl-phenylether	10	U	
118-74-1-----	Hexachlorobenzene	10	U	
87-86-5-----	Pentachlorophenol	25	U	
85-01-8-----	Phenanthrene	10	U	
120-12-7-----	Anthracene	10	U	
86-74-8-----	Carbazole	10	U	
84-74-2-----	Di-n-Butylphthalate	10	U	
206-44-0-----	Fluoranthene	10	U	
129-00-0-----	Pyrene	10	U	
85-68-7-----	Butylbenzylphthalate	10	U	
91-94-1-----	3,3'-Dichlorobenzidine	10	U	
56-55-3-----	Benzo(a)Anthracene	10	U	
218-01-9-----	Chrysene	10	U	
117-81-7-----	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0-----	Di-n-Octyl Phthalate	10	U	
205-99-2-----	Benzo(b)Fluoranthene	10	U	
207-08-9-----	Benzo(k)Fluoranthene	10	U	
50-32-8-----	Benzo(a)Pyrene	10	U	
193-39-5-----	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3-----	Dibenz(a,h)Anthracene	10	U	
191-24-2-----	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26523-01FB

Name: ENSECO	Contract:	
Lab Code: ENSECO	Case No.: 26523	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01FB
Sample wt/vol: 1000 (g/mL) ML		Lab File ID: R3402
Level: (low/med) LOW		Date Received: 12/02/92
% Moisture: decanted: (Y/N)		Date Extracted: 12/03/92
Concentrated Extract Volume: 1000 (uL)		Date Analyzed: 12/11/92
Injection Volume: 2.0(uL)		Dilution Factor: 1.0
GPC Cleanup: (Y/N) N	pH: 7.0	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2-----	Phenol	10	U
111-44-4-----	bis(2-Chloroethyl)Ether	10	U
95-57-8-----	2-Chlorophenol	10	U
541-73-1-----	1,3-Dichlorobenzene	10	U
106-46-7-----	1,4-Dichlorobenzene	10	U
95-50-1-----	1,2-Dichlorobenzene	10	U
95-48-7-----	2-Methylphenol	10	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5-----	4-Methylphenol	10	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	10	U
67-72-1-----	Hexachloroethane	10	U
98-95-3-----	Nitrobenzene	10	U
78-59-1-----	Isophorone	10	U
88-75-5-----	2-Nitrophenol	10	U
105-67-9-----	2,4-Dimethylphenol	10	U
111-91-1-----	bis(2-Chloroethoxy)Methane	10	U
120-83-2-----	2,4-Dichlorophenol	10	U
120-82-1-----	1,2,4-Trichlorobenzene	10	U
91-20-3-----	Naphthalene	10	U
106-47-8-----	4-Chloroaniline	10	U
87-68-3-----	Hexachlorobutadiene	10	U
59-50-7-----	4-Chloro-3-Methylphenol	10	U
91-57-6-----	2-Methylnaphthalene	10	U
77-47-4-----	Hexachlorocyclopentadiene	10	U
88-06-2-----	2,4,6-Trichlorophenol	10	U
95-95-4-----	2,4,5-Trichlorophenol	25	U
91-58-7-----	2-Choronaphthalene	10	U
88-74-4-----	2-Nitroaniline	25	U
131-11-3-----	Dimethyl Phthalate	10	U
208-96-8-----	Acenaphthylene	10	U
606-20-2-----	2,6-Dinitrotoluene	10	U
99-09-2-----	3-Nitroaniline	25	U
83-32-9-----	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26523-01FB

Name: ENSECO

Contract:

Lab Code: ENSECO	Case No.: 26523	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01FB	
Sample wt/vol: 1000 (g/mL) ML		Lab File ID: R3402	
Level: (low/med) LOW		Date Received: 12/02/92	
% Moisture: decanted: (Y/N)		Date Extracted: 12/03/92	
Concentrated Extract Volume: 1000 (uL)		Date Analyzed: 12/11/92	
Injection Volume: 2.0(uL)		Dilution Factor: 1.0	
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q	

CAS NO.	COMPOUND	UG/L	Q
51-28-5-----	2,4-Dinitrophenol	25	U
100-02-7-----	4-Nitrophenol	25	U
132-64-9-----	Dibenzofuran	10	U
121-14-2-----	2,4-Dinitrotoluene	10	U
84-66-2-----	Diethylphthalate	10	U
7005-72-3-----	4-Chlorophenyl-phenylether	10	U
86-73-7-----	Fluorene	10	U
100-01-6-----	4-Nitroaniline	25	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	25	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10	U
101-55-3-----	4-Bromophenyl-phenylether	10	U
118-74-1-----	Hexachlorobenzene	10	U
87-86-5-----	Pentachlorophenol	25	U
85-01-8-----	Phenanthrene	10	U
120-12-7-----	Anthracene	10	U
86-74-8-----	Carbazole	10	U
84-74-2-----	Di-n-Butylphthalate	10	U
206-44-0-----	Fluoranthene	10	U
129-00-0-----	Pyrene	10	U
85-68-7-----	Butylbenzylphthalate	10	U
91-94-1-----	3,3'-Dichlorobenzidine	10	U
56-55-3-----	Benzo(a)Anthracene	10	U
218-01-9-----	Chrysene	10	U
117-81-7-----	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0-----	Di-n-Octyl Phthalate	10	U
205-99-2-----	Benzo(b)Fluoranthene	10	U
207-08-9-----	Benzo(k)Fluoranthene	10	U
50-32-8-----	Benzo(a)Pyrene	10	U
193-39-5-----	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3-----	Dibenz(a,h)Anthracene	10	U
191-24-2-----	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK01

Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26523

SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: BL120392

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: R3398

Level: (low/med) LOW

Date Received:

% Moisture: decanted: (Y/N)

Date Extracted: 12/03/92

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
108-95-2-----	Phenol	10	U
111-44-4-----	bis(2-Chloroethyl) Ether	10	U
95-57-8-----	2-Chlorophenol	10	U
541-73-1-----	1,3-Dichlorobenzene	10	U
106-46-7-----	1,4-Dichlorobenzene	10	U
95-50-1-----	1,2-Dichlorobenzene	10	U
95-48-7-----	2-Methylphenol	10	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5-----	4-Methylphenol	10	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	10	U
67-72-1-----	Hexachloroethane	10	U
98-95-3-----	Nitrobenzene	10	U
78-59-1-----	Isophorone	10	U
88-75-5-----	2-Nitrophenol	10	U
105-67-9-----	2,4-Dimethylphenol	10	U
111-91-1-----	bis(2-Chloroethoxy) Methane	10	U
120-83-2-----	2,4-Dichlorophenol	10	U
120-82-1-----	1,2,4-Trichlorobenzene	10	U
91-20-3-----	Naphthalene	10	U
106-47-8-----	4-Chloroaniline	10	U
87-68-3-----	Hexachlorobutadiene	10	U
59-50-7-----	4-Chloro-3-Methylphenol	10	U
91-57-6-----	2-Methylnaphthalene	10	U
77-47-4-----	Hexachlorocyclopentadiene	10	U
88-06-2-----	2,4,6-Trichlorophenol	10	U
95-95-4-----	2,4,5-Trichlorophenol	25	U
91-58-7-----	2-Chloronaphthalene	10	U
88-74-4-----	2-Nitroaniline	25	U
131-11-3-----	Dimethyl Phthalate	10	U
208-96-8-----	Acenaphthylene	10	U
606-20-2-----	2,6-Dinitrotoluene	10	U
99-09-2-----	3-Nitroaniline	25	U
83-32-9-----	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLK01

Name: ENSECO	Contract:		
Code: ENSECO	Case No.: 26523	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: BL120392	
Sample wt/vol:	1000 (g/mL) ML	Lab File ID:	R3398
Level:	(low/med) LOW	Date Received:	
% Moisture:	decanted: (Y/N)	Date Extracted:	12/03/92
Concentrated Extract Volume: 1000 (uL)		Date Analyzed:	12/11/92
Injection Volume:	2.0(uL)	Dilution Factor:	1.0
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q	

CAS NO.	COMPOUND	UG/L	Q
51-28-5-----	2,4-Dinitrophenol	25	U
100-02-7-----	4-Nitrophenol	25	U
132-64-9-----	Dibenzofuran	10	U
121-14-2-----	2,4-Dinitrotoluene	10	U
84-66-2-----	Diethylphthalate	10	U
7005-72-3-----	4-Chlorophenyl-phenylether	10	U
86-73-7-----	Fluorene	10	U
100-01-6-----	4-Nitroaniline	25	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	25	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10	U
101-55-3-----	4-Bromophenyl-phenylether	10	U
118-74-1-----	Hexachlorobenzene	10	U
87-86-5-----	Pentachlorophenol	25	U
85-01-8-----	Phenanthrene	10	U
120-12-7-----	Anthracene	10	U
86-74-8-----	Carbazole	10	U
84-74-2-----	Di-n-Butylphthalate	10	U
206-44-0-----	Fluoranthene	10	U
129-00-0-----	Pyrene	10	U
85-68-7-----	Butylbenzylphthalate	10	U
91-94-1-----	3,3'-Dichlorobenzidine	10	U
56-55-3-----	Benzo(a)Anthracene	10	U
218-01-9-----	Chrysene	10	U
117-81-7-----	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0-----	Di-n-Octyl Phthalate	10	U
205-99-2-----	Benzo(b)Fluoranthene	10	U
207-08-9-----	Benzo(k)Fluoranthene	10	U
50-32-8-----	Benzo(a)Pyrene	10	U
193-39-5-----	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3-----	Dibenz(a,h)Anthracene	10	U
191-24-2-----	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: ENSECO	Contract:	26523-01MS	
Code: ENSECO	Case No.: 26523	SAS No.:	SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01MS	
Sample wt/vol: 1000 (g/mL) ML		Lab File ID: R3404	
Level: (low/med) LOW		Date Received: 12/02/92	
% Moisture: decanted: (Y/N)		Date Extracted: 12/03/92	
Concentrated Extract Volume: 1000 (uL)		Date Analyzed: 12/11/92	
Injection Volume: 2.0(uL)		Dilution Factor: 1.0	
GPC Cleanup: (Y/N) N pH: 7.0		CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q	

CAS NO.	COMPOUND	UG/L	Q
108-95-2-----	Phenol	49	
111-44-4-----	bis(2-Chloroethyl)Ether	10	U
95-57-8-----	2-Chlorophenol	72	
541-73-1-----	1,3-Dichlorobenzene	10	U
106-46-7-----	1,4-Dichlorobenzene	30	
95-50-1-----	1,2-Dichlorobenzene	10	U
95-48-7-----	2-Methylphenol	10	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5-----	4-Methylphenol	10	U
621-64-7-----	N-Nitroso-Di-n-Propylamine	38	
67-72-1-----	Hexachloroethane	10	U
98-95-3-----	Nitrobenzene	10	U
78-59-1-----	Isophorone	10	U
88-75-5-----	2-Nitrophenol	10	U
105-67-9-----	2,4-Dimethylphenol	10	U
111-91-1-----	bis(2-Chloroethoxy)Methane	10	U
120-83-2-----	2,4-Dichlorophenol	10	U
120-82-1-----	1,2,4-Trichlorobenzene	29	
91-20-3-----	Naphthalene	10	U
106-47-8-----	4-Chloroaniline	10	U
87-68-3-----	Hexachlorobutadiene	10	U
59-50-7-----	4-Chloro-3-Methylphenol	56	
91-57-6-----	2-Methylnaphthalene	10	U
77-47-4-----	Hexachlorocyclopentadiene	10	U
88-06-2-----	2,4,6-Trichlorophenol	10	U
95-95-4-----	2,4,5-Trichlorophenol	25	U
91-58-7-----	2-Chloronaphthalene	10	U
88-74-4-----	2-Nitroaniline	25	U
131-11-3-----	Dimethyl Phthalate	10	U
208-96-8-----	Acenaphthylene	10	U
606-20-2-----	2,6-Dinitrotoluene	10	U
99-09-2-----	3-Nitroaniline	25	U
83-32-9-----	Acenaphthene	34	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26523-01MS

Name: ENSECO	Contract:	
Code: ENSECO	Case No.: 26523	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01MS
Sample wt/vol:	1000 (g/mL) ML	Lab File ID: R3404
Level:	(low/med) LOW	Date Received: 12/02/92
% Moisture:	decanted: (Y/N)	Date Extracted: 12/03/92
Concentrated Extract Volume: 1000 (uL)		Date Analyzed: 12/11/92
Injection Volume:	2.0(uL)	Dilution Factor: 1.0
GPC Cleanup: (Y/N) N	pH: 7.0	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	UG/L	Q
51-28-5-----	2,4-Dinitrophenol	25	U
100-02-7-----	4-Nitrophenol	62	
132-64-9-----	Dibenzofuran	10	U
121-14-2-----	2,4-Dinitrotoluene	39	
84-66-2-----	Diethylphthalate	10	U
7005-72-3-----	4-Chlorophenyl-phenylether	10	U
86-73-7-----	Fluorene	10	U
100-01-6-----	4-Nitroaniline	25	U
534-52-1-----	4,6-Dinitro-2-Methylphenol	25	U
86-30-6-----	N-Nitrosodiphenylamine (1)	10	U
101-55-3-----	4-Bromophenyl-phenylether	10	U
118-74-1-----	Hexachlorobenzene	10	U
87-86-5-----	Pentachlorophenol	59	
85-01-8-----	Phenanthrene	10	U
120-12-7-----	Anthracene	10	U
86-74-8-----	Carbazole	10	U
84-74-2-----	Di-n-Butylphthalate	10	U
206-44-0-----	Fluoranthene	10	U
129-00-0-----	Pyrene	34	
85-68-7-----	Butylbenzylphthalate	10	U
91-94-1-----	3,3'-Dichlorobenzidine	10	U
56-55-3-----	Benzo(a)Anthracene	10	U
218-01-9-----	Chrysene	10	U
117-81-7-----	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0-----	Di-n-Octyl Phthalate	10	U
205-99-2-----	Benzo(b)Fluoranthene	10	U
207-08-9-----	Benzo(k)Fluoranthene	10	U
50-32-8-----	Benzo(a)Pyrene	10	U
193-39-5-----	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3-----	Dibenz(a,h)Anthracene	10	U
191-24-2-----	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMICVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Name: ENSECO	Contract:	26523-01MSD
Code: ENSECO	Case No.: 26523	SAS No.:
Matrix: (soil/water) WATER		Lab Sample ID: 26523-01MSD
Sample wt/vol:	1000 (g/mL) ML	Lab File ID: R3405
Level:	(low/med) LOW	Date Received: 12/02/92
% Moisture:	decanted: (Y/N)	Date Extracted: 12/03/92
Concentrated Extract Volume: 1000 (uL)		Date Analyzed: 12/11/92
Injection Volume:	2.0(uL)	Dilution Factor: 1.0
GPC Cleanup: (Y/N) N	pH: 7.0	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
108-95-2-----	Phenol	50		
111-44-4-----	bis(2-Chloroethyl)Ether	10		
95-57-8-----	2-Chlorophenol	74		
541-73-1-----	1,3-Dichlorobenzene	10		
106-46-7-----	1,4-Dichlorobenzene	33		
95-50-1-----	1,2-Dichlorobenzene	10		
95-48-7-----	2-Methylphenol	10		
108-60-1-----	2,2'-oxybis(1-Chloropropane)	10		
106-44-5-----	4-Methylphenol	10		
621-64-7-----	N-Nitroso-Di-n-Propylamine	40		
67-72-1-----	Hexachloroethane	10		
98-95-3-----	Nitrobenzene	10		
78-59-1-----	Isophorone	10		
88-75-5-----	2-Nitrophenol	10		
105-67-9-----	2,4-Dimethylphenol	10		
111-91-1-----	bis(2-Chloroethoxy)Methane	10		
120-83-2-----	2,4-Dichlorophenol	10		
120-82-1-----	1,2,4-Trichlorobenzene	32		
91-20-3-----	Naphthalene	10		
106-47-8-----	4-Chloroaniline	10		
87-68-3-----	Hexachlorobutadiene	10		
59-50-7-----	4-Chloro-3-Methylphenol	59		
91-57-6-----	2-Methylnaphthalene	10		
77-47-4-----	Hexachlorocyclopentadiene	10		
88-06-2-----	2,4,6-Trichlorophenol	10		
95-95-4-----	2,4,5-Trichlorophenol	25		
91-58-7-----	2-Chloronaphthalene	10		
88-74-4-----	2-Nitroaniline	25		
131-11-3-----	Dimethyl Phthalate	10		
208-96-8-----	Acenaphthylene	10		
606-20-2-----	2,6-Dinitrotoluene	10		
99-09-2-----	3-Nitroaniline	25		
83-32-9-----	Acenaphthene	37		

1C
SEMICVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

26523-01MSD

Lab Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26523

SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 26523-01MSD

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: R3405

Level: (low/med) LOW

Date Received: 12/02/92

% Moisture: decanted: (Y/N)

Date Extracted: 12/03/92

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND			
51-28-5-----	2,4-Dinitrophenol	25	U	
100-02-7-----	4-Nitrophenol	62		
132-64-9-----	Dibenzofuran	10	U	
121-14-2-----	2,4-Dinitrotoluene	39		
84-66-2-----	Diethylphthalate	10	U	
7005-72-3-----	4-Chlorophenyl-phenylether	10	U	
86-73-7-----	Fluorene	10	U	
100-01-6-----	4-Nitroaniline	25	U	
534-52-1-----	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6-----	N-Nitrosodiphenylamine (1)	10	U	
101-55-3-----	4-Bromophenyl-phenylether	10	U	
118-74-1-----	Hexachlorobenzene	10	U	
87-86-5-----	Pentachlorophenol	64		
85-01-8-----	Phenanthren	10	U	
120-12-7-----	Anthracene	10	U	
86-74-8-----	Carbazole	10	U	
84-74-2-----	Di-n-Butylphthalate	10	U	
206-44-0-----	Fluoranthene	10	U	
129-00-0-----	Pyrene	36		
85-68-7-----	Butylbenzylphthalate	10	U	
91-94-1-----	3,3'-Dichlorobenzidine	10	U	
56-55-3-----	Benzo(a)Anthracene	10	U	
218-01-9-----	Chrysene	10	U	
117-81-7-----	bis(2-Ethylhexyl) Phthalate	10	U	
117-84-0-----	Di-n-Octyl Phthalate	10	U	
205-99-2-----	Benzo(b)Fluoranthene	10	U	
207-08-9-----	Benzo(k)Fluoranthene	10	U	
50-32-8-----	Benzo(a)Pyrene	10	U	
193-39-5-----	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3-----	Dibenz(a,h)Anthracene	10	U	
191-24-2-----	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
01	26523-01	76	62	79	64	85	86	85	76	0
02	26523-01DU	81	70	81	67	90	87	90	84	0
03	26523-01FB	78	65	77	64	86	87	87	77	0
04	26523-01MS	70	59	73	59	78	87	79	70	0
05	26523-01MSD	75	64	74	63	84	93	85	75	0
06	BLK01	75	64	72	65	83	77	84	75	0

QC LIMITS

S1 (NBZ) = Nitrobenzene-d5	(35-114)
S2 (FBP) = 2-Fluorobiphenyl	(43-116)
S3 (TPH) = Terphenyl-d14	(33-141)
S4 (PHL) = Phenol-d5	(10-110)
S5 (2FP) = 2-Fluorophenol	(21-110)
S6 (TBP) = 2,4,6-Tribromophenol	(10-123)
S7 (2CP) = 2-Chlorophenol-d4	(33-110) (advisory)
S8 (DCB) = 1,2-Dichlorobenzene-d4	(16-110) (advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ENSECO

Contract:

Code: ENSECO

Case No.: 26523

SAS No.:

SDG No.:

Matrix Spike - EPA Sample No.: 26523-01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	75.00	0	49.00	65	12-110
2-Chlorophenol	75.00	0	71.70	96	27-123
1,4-Dichlorobenzene	50.00	0	29.50	59	36- 97
N-Nitroso-di-n-prop.(1)	50.00	0	38.50	77	41-116
1,2,4-Trichlorobenzene	50.00	0	28.90	58	39- 98
4-Chloro-3-methylphenol	75.00	0	56.50	75	23- 97
Acenaphthene	50.00	0	34.20	68	46-118
4-Nitrophenol	75.00	0	62.20	83 *	10- 80
2,4-Dinitrotoluene	50.00	0	38.60	77	24- 96
Pentachlorophenol	75.00	0	59.20	79	9-103
Pyrene	50.00	0	34.30	69	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Phenol	75.00	50.10	67	3	42	12-110
2-Chlorophenol	75.00	73.50	98	2	40	27-123
1,4-Dichlorobenzene	50.00	32.60	65	10	28	36- 97
N-Nitroso-di-n-prop.(1)	50.00	39.70	79	3	38	41-116
1,2,4-Trichlorobenzene	50.00	32.20	64	10	28	39- 98
4-Chloro-3-methylphenol	75.00	59.20	79	5	42	23- 97
Acenaphthene	50.00	36.80	74	8	31	46-118
4-Nitrophenol	75.00	61.60	82 *	1	50	10- 80
2,4-Dinitrotoluene	50.00	39.40	79	3	38	24- 96
Pentachlorophenol	75.00	63.60	85	7	50	9-103
Pyrene	50.00	36.50	73	6	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 2 out of 22 outside limits

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLK01

b Name: ENSECO

Contract:

Lab Code: ENSECO

Case No.: 26523

SAS No.:

SDG No.:

Lab File ID: R3398

Lab Sample ID: BL120392

Instrument ID: 4500-R

Date Extracted: 12/03/92

Matrix: (soil/water) WATER

Date Analyzed: 12/11/92

Level: (low/med) LOW

Time Analyzed: 1650

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01 26523-01	26523-01	R3400	12/11/92
02 26523-01DU	26523-01DU	R3401	12/11/92
03 26523-01FB	26523-01FB	R3402	12/11/92
04 26523-01MS	26523-01MS	R3404	12/11/92
05 26523-01MSD	26523-01MSD	R3405	12/11/92

COMMENTS:

5B
 SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
 DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Name: ENSECO Contract:
 Lab Code: ENSECO Case No.: 26523 SAS No.: SDG No.:
 Lab File ID: R3389 DFTPP Injection Date: 12/11/92
 Instrument ID: 4500-R DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	33.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	45.7
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	20.6
365	Greater than 0.75% of mass 198	2.27
441	Present, but less than mass 443	6.6
442	40.0 - 110.0% of mass 198	47.6
443	15.0 - 24.0% of mass 442	9.4 (19.7)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD050	50 PPM HSL	R3390	12/11/92	0950
02 SSTD160	160 PPM HSL	R3391	12/11/92	1036
03 SSTD120	120 PPM HSL	R3392	12/11/92	1121
04 SSTD020	20 PPM HSL	R3394	12/11/92	1251
05 SSTD080	80 PPM HSL	R3395	12/11/92	1422

5B
 SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
 DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Name: ENSECO Contract:
 Lab Code: ENSECO Case No.: 26523 SAS No.: SDG No.:
 Lab File ID: R3396 DFTPP Injection Date: 12/11/92
 Instrument ID: 4500-R DFTPP Injection Time: 1549

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	30.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	45.9
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	43.9
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 0.75% of mass 198	1.59
441	Present, but less than mass 443	7.0
442	40.0 - 110.0% of mass 198	53.1
443	15.0 - 24.0% of mass 442	10.6 (20.0)2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 SSTD050	50 PPM HSL	R3397	12/11/92	1605
02 BLK01	BL120392	R3398	12/11/92	1650
03 26523-01	26523-01	R3400	12/11/92	1820
04 26523-01DU	26523-01DU	R3401	12/11/92	1905
05 26523-01FB	26523-01FB	R3402	12/11/92	1949
06 26523-01MS	26523-01MS	R3404	12/11/92	2119
07 26523-01MSD	26523-01MSD	R3405	12/11/92	2204

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

Instrument ID: 4500-R Calibration Date(s): 12/11/92 12/11/92
Calibration Times: 0950 1422

LAB FILE ID: RRF80 = R3395	RRF20 = R3394 RRF120= R3392	RRF50 = R3390 RRF160= R3391
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COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	RRF	% RSD
Phenol	* 2.237	2.199	2.176	2.895	2.418	2.385	12.6*
bis(2-Chloroethyl)Ether	* 1.744	1.657	1.786	1.836	2.263	1.857	12.7*
2-Chlorophenol	* 1.458	1.394	1.507	1.515	1.532	1.481	3.8*
1,3-Dichlorobenzene	* 1.514	1.500	1.531	1.569	1.588	1.540	2.4*
1,4-Dichlorobenzene	* 1.535	1.474	1.505	1.563	1.722	1.560	6.2*
1,2-Dichlorobenzene	* 1.435	1.386	1.454	1.465	1.579	1.464	4.9*
2-Methylphenol	* 1.453	1.430	1.488	1.464	1.406	1.448	2.2*
2,2'-oxybis(1-Chloropropane)	2.934	2.789	3.000	3.019	3.417	3.032	7.7
4-Methylphenol	* 1.499	1.459	1.626	1.539	1.689	1.562	6.0*
N-Nitroso-Di-n-Propylamine	* 1.287	1.204	1.346	1.315	1.225	1.275	4.7*
Hexachloroethane	* 0.570	0.563	0.580	0.593	0.557	0.573	2.5*
Nitrobenzene	* 0.445	0.425	0.439	0.473	0.514	0.459	7.7*
Isophorone	* 0.840	0.779	0.801	1.028	0.917	0.873	11.6*
2-Nitrophenol	* 0.232	0.225	0.240	0.257	0.240	0.239	5.0*
4-Dimethylphenol	* 0.322	0.316	0.341	0.340	0.314	0.327	4.0*
5-(2-Chloroethoxy)Methane	* 0.486	0.469	0.499	0.512	0.534	0.500	5.0*
2,4-Dichlorophenol	* 0.257	0.249	0.263	0.272	0.259	0.260	3.2*
1,2,4-Trichlorobenzene	* 0.277	0.264	0.272	0.288	0.262	0.273	3.9*
Naphthalene	* 1.135	1.099	1.504	1.403	1.222	1.273	13.7*
4-Chloroaniline	0.394	0.370	0.365	0.370	0.350	0.370	4.3
Hexachlorobutadiene	0.137	0.130	0.133	0.143	0.130	0.135	4.1
4-Chloro-3-Methylphenol	* 0.305	0.296	0.316	0.325	0.298	0.308	4.0*
2-Methylnaphthalene	* 0.667	0.641	0.679	0.849	0.778	0.723	12.1*
Hexachlorocyclopentadiene	0.322	0.309	0.358	0.375	0.360	0.345	8.1
2,4,6-Trichlorophenol	* 0.301	0.259	0.342	0.348	0.338	0.318	11.8*
2,4,5-Trichlorophenol	* 0.364	0.420	0.403	0.359	0.386	0.377	7.7*
2-Chloronaphthalene	* 1.249	1.137	1.316	1.376	1.393	1.294	8.1*
2-Nitroaniline		0.427	0.480	0.489	0.439	0.459	6.6
Dimethyl Phthalate	1.375	1.237	1.379	1.319	1.206	1.303	6.1
Acenaphthylene	* 2.213	2.105	2.575	2.971	2.526	2.478	13.8*
2,6-Dinitrotoluene	* 0.319	0.292	0.322	0.317	0.294	0.309	4.7*
3-Nitroaniline		0.305	0.338	0.338	0.311	0.323	5.4
Acenaphthene	* 1.265	1.200	1.338	1.347	1.360	1.302	5.2*
2,4-Dinitrophenol		0.078	0.120	0.128	0.118	0.111	20.2
4-Nitrophenol		0.074	0.104	0.106	0.102	0.096	15.7
Dibenzofuran	* 1.686	1.531	1.758	2.061	1.880	1.783	11.2*
2,4-Dinitrotoluene	* 0.374	0.354	0.411	0.398	0.366	0.381	6.1*

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

6C
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

Instrument ID: 4500-R Calibration Date(s): 12/11/92 12/11/92

Calibration Times: 0950 1422

LAB FILE ID: RRF80 = R3395	RRF20 = R3394 RRF120= R3392	RRF50 = R3390 RRF160= R3391
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COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	RRF	% RSD
Diethylphthalate	1.304	1.195	1.295	1.260	1.189	1.249	4.3
4-Chlorophenyl-phenylether *	0.510	0.463	0.518	0.502	0.449	0.488	6.3*
Fluorene *	1.479	1.330	1.472	1.516	1.563	1.472	5.9*
4-Nitroaniline		0.268	0.312	0.300	0.277	0.289	7.0
4,6-Dinitro-2-Methylphenol		0.086	0.114	0.127	0.121	0.112	16.2
N-Nitrosodiphenylamine (1)	0.616	0.569	0.575	0.623	0.576	0.592	4.3
4-Bromophenyl-phenylether *	0.219	0.194	0.199	0.221	0.200	0.207	6.0*
Hexachlorobenzene *	0.219	0.198	0.196	0.221	0.205	0.208	5.6*
Pentachlorophenol *		0.079	0.106	0.128	0.121	0.108	20.1*
Phenanthrene *	1.131	1.035	1.096	1.339	1.321	1.184	11.6*
Anthracene *	1.120	1.011	1.102	1.262	1.300	1.159	10.3*
Carbazole	0.953	0.838	0.943	0.957	0.875	0.913	5.9
Di-n-Butylphthalate	1.286	1.244	1.402	1.741	1.563	1.447	14.2
Fluoranthene *	1.017	0.914	1.022	1.074	1.251	1.056	11.7*
Pyrene *	1.751	1.602	1.638	1.784	1.790	1.713	5.1*
Methylbenzylphthalate	0.743	0.702	0.740	0.814	0.739	0.748	5.4
3,3'-Dichlorobenzidine	0.357	0.290	0.245	0.335	0.293	0.304	14.3
Benzo(a)Anthracene *	1.362	1.237	1.237	1.396	1.387	1.324	6.1*
Chrysene *	1.260	1.140	1.136	1.250	1.217	1.201	4.9*
bis(2-Ethylhexyl)Phthalate	1.117	1.062	1.125	1.243	1.194	1.148	6.2
Di-n-Octyl Phthalate	1.982	1.896	2.112	2.724	2.378	2.218	15.2
Benzo(b)Fluoranthene *	1.349	1.264	1.288	1.332	1.368	1.320	3.3*
Benzo(k)Fluoranthene *	1.144	0.985	1.078	1.165	1.050	1.084	6.7*
Benzo(a)Pyrene *	1.060	0.976	1.026	1.111	1.017	1.038	4.9*
Indeno(1,2,3-cd)Pyrene *	1.056	0.936	1.016	1.095	1.029	1.026	5.7*
Dibenz(a,h)Anthracene *	0.813	0.778	0.835	0.945	0.861	0.846	7.4*
Benzo(g,h,i)Perylene *	0.877	0.841	0.863	0.973	0.895	0.890	5.7*
Nitrobenzene-d5 *	0.431	0.402	0.424	0.443	0.411	0.422	3.8*
2-Fluorobiphenyl *	1.584	1.444	1.690	1.894	1.879	1.698	11.4*
Terphenyl-d14 *	1.165	1.090	1.091	1.191	1.144	1.136	4.0*
Phenol-d5 *	2.170	2.137	2.272	2.607	2.721	2.381	11.2*
2-Fluorophenol *	1.289	1.303	1.319	1.386	1.544	1.368	7.7*
2,4,6-Tribromophenol	0.103	0.092	0.112	0.120	0.112	0.108	9.9
2-Chlorophenol-d4 *	1.268	1.226	1.294	1.339	1.232	1.272	3.7*
1,2-Dichlorobenzene-d4 *	0.881	0.858	0.890	0.916	0.859	0.881	2.7*

(1) Cannot be separated from Diphenylamine

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

Instrument ID: 4500-R Calibration date: 12/11/92 Time: 1605

Lab File ID: R3397 Init. Calib. Date(s): 12/11/92 12/11/92

Init. Calib. Times: 0950 1422

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Phenol	2.385	2.157	0.800	9.6	25.0
bis(2-Chloroethyl)Ether	1.857	1.677	0.700	9.7	25.0
2-Chlorophenol	1.481	1.412	0.800	4.7	25.0
1,3-Dichlorobenzene	1.540	1.454	0.600	5.6	25.0
1,4-Dichlorobenzene	1.560	1.460	0.500	6.4	25.0
1,2-Dichlorobenzene	1.464	1.386	0.400	5.3	25.0
2-Methylphenol	1.448	1.439	0.700	0.6	25.0
2,2'-oxybis(1-Chloropropane)	3.032	2.812		7.3	
4-Methylphenol	1.562	1.504	0.600	3.7	25.0
N-Nitroso-Di-n-Propylamine	1.275	1.225	0.500	3.9	25.0
Hexachloroethane	0.573	0.560	0.300	2.3	25.0
Nitrobenzene	0.459	0.417	0.200	9.2	25.0
Isophorone	0.873	0.775	0.400	11.2	25.0
2-Nitrophenol	0.239	0.231	0.100	3.3	25.0
2,4-Dimethylphenol	0.327	0.312	0.200	4.6	25.0
bis(2-Chloroethoxy)Methane	0.500	0.462	0.300	7.6	25.0
2,4-Dichlorophenol	0.260	0.247	0.200	5.0	25.0
1,2,4-Trichlorobenzene	0.273	0.258	0.200	5.5	25.0
Naphthalene	1.273	1.072	0.700	15.8	25.0
4-Chloroaniline	0.370	0.358		3.2	
Hexachlorobutadiene	0.135	0.126		6.7	
4-Chloro-3-Methylphenol	0.308	0.292	0.200	5.2	25.0
2-Methylnaphthalene	0.723	0.631	0.400	12.7	25.0
Hexachlorocyclopentadiene	0.345	0.323		6.4	
2,4,6-Trichlorophenol	0.318	0.276	0.200	13.2	25.0
2,4,5-Trichlorophenol	0.386	0.373	0.200	3.4	25.0
2-Chloronaphthalene	1.294	1.169	0.800	9.7	25.0
2-Nitroaniline	0.459	0.412		10.2	
Dimethyl Phthalate	1.303	1.148		11.9	
Acenaphthylene	2.478	2.098	1.300	15.3	25.0
2,6-Dinitrotoluene	0.309	0.272	0.200	12.0	25.0
3-Nitroaniline	0.323	0.299		7.4	
Acenaphthene	1.302	1.178	0.800	9.5	25.0
2,4-Dinitrophenol	0.111	0.092		17.1	
4-Nitrophenol	0.096	0.080		16.7	
Dibenzofuran	1.783	1.505	0.800	15.6	25.0
2,4-Dinitrotoluene	0.381	0.351	0.200	7.9	25.0

All other compounds must meet a minimum RRF of 0.010.

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ENSECO

Contract:

, Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

Instrument ID: 4500-R Calibration date: 12/11/92 Time: 1605

Lab File ID: R3397 Init. Calib. Date(s): 12/11/92 12/11/92

Init. Calib. Times: 0950 1422

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.249	1.095		12.3	
4-Chlorophenyl-phenylether	0.488	0.446	0.400	8.6	25.0
Fluorene	1.472	1.250	0.900	15.1	25.0
4-Nitroaniline	0.289	0.227		21.4	
4,6-Dinitro-2-Methylphenol	0.112	0.098		12.5	
N-Nitrosodiphenylamine (1)	0.592	0.534		9.8	
4-Bromophenyl-phenylether	0.207	0.189	0.100	8.7	25.0
Hexachlorobenzene	0.208	0.189	0.100	9.1	25.0
Pentachlorophenol	0.108	0.095	0.050	12.0	25.0
Phenanthrene	1.184	1.028	0.700	13.2	25.0
Anthracene	1.159	1.011	0.700	12.8	25.0
Carbazole	0.913	0.854		6.5	
Di-n-Butylphthalate	1.447	1.263		12.7	
Fluoranthene	1.056	0.937	0.600	11.3	25.0
Pyrene	1.713	1.572	0.600	8.2	25.0
Butylbenzylphthalate	0.748	0.723		3.3	
3,3'-Dichlorobenzidine	0.304	0.284		6.6	
Benzo(a)Anthracene	1.324	1.230	0.800	7.1	25.0
Chrysene	1.201	1.145	0.700	4.7	25.0
bis(2-Ethylhexyl)Phthalate	1.148	1.067		7.1	
Di-n-Octyl Phthalate	2.218	1.916		13.6	
Benzo(b)Fluoranthene	1.320	1.157	0.700	12.4	25.0
Benzo(k)Fluoranthene	1.084	1.092	0.700	-0.7	25.0
Benzo(a)Pyrene	1.038	0.966	0.700	6.9	25.0
Indeno(1,2,3-cd)Pyrene	1.026	0.912	0.500	11.1	25.0
Dibenz(a,h)Anthracene	0.846	0.768	0.400	9.2	25.0
Benzo(g,h,i)Perylene	0.890	0.804	0.500	9.7	25.0
Nitrobenzene-d5	0.422	0.403	0.200	4.5	25.0
2-Fluorobiphenyl	1.698	1.497	0.700	11.8	25.0
Terphenyl-d14	1.136	1.073	0.500	5.5	25.0
Phenol-d5	2.381	2.155	0.800	9.5	25.0
2-Fluorophenol	1.368	1.262	0.600	7.7	25.0
2,4,6-Tribromophenol	0.108	0.094		13.0	
2-Chlorophenol-d4	1.272	1.221	0.800	4.0	25.0
1,2-Dichlorobenzene-d4	0.881	0.854	0.400	3.1	25.0

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 26523 SAS No.: SDG No.:

Lab File ID (Standard): R3397

Date Analyzed: 12/11/92

Instrument ID: 4500-R

Time Analyzed: 1605

	IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
12 HOUR STD	10278	8.02	38856	10.99	18440	15.42
UPPER LIMIT	20556	8.52	77712	11.49	36880	15.92
LOWER LIMIT	5139	7.52	19428	10.49	9220	14.92
EPA SAMPLE NO.						
01 26523-01	9870	7.95	36271	10.97	15998	15.40
02 26523-01DU	8751	7.95	32078	10.97	13927	15.39
03 26523-01FB	9643	7.93	35657	10.95	15572	15.39
04 26523-01MS	8593	7.95	31854	10.97	14348	15.39
05 26523-01MSD	9147	7.95	34046	10.97	15212	15.40
06 BLK01	9664	7.93	35782	10.95	15917	15.39

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ENSECO

Contract:

Code: ENSECO Case No.: 26523

SAS No.:

SDG No.:

Lab File ID (Standard): R3397

Date Analyzed: 12/11/92

Instrument ID: 4500-R

Time Analyzed: 1605

	IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
12 HOUR STD	26541	19.22	15492	26.12	13878	29.62
UPPER LIMIT	53082	19.72	30984	26.62	27756	30.12
LOWER LIMIT	13270	18.72	7746	25.62	6939	29.12
EPA SAMPLE NO.						
01 26523-01	22486	19.22	13577	26.09	12159	29.62
02 26523-01DU	18873	19.22	10845	26.11	9891	29.62
03 26523-01FB	21667	19.20	12927	26.09	11665	29.61
04 26523-01MS	20899	19.22	12666	26.09	11753	29.61
05 26523-01MSD	21911	19.22	12657	26.11	11151	29.61
06 BLK01	23416	19.20	13871	26.09	12888	29.61

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = +0.50 minutes of internal standard RT.

RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.

* Values outside of QC limits.

ANALYTICAL TEST REQUESTS
for
City of St. Louis Park

Lab ID: 026523	Group Code	Analysis Description	Custom Test?
0001 , 0001	A	CLP/HSL Semivolatile Organics CLP Prep - HSL Semivolatile Organics by GC/MS	N N
0001	B	CLP Prep - HSL Semivolatile Organics by GC/MS	N



Qualifier Codes and Their Usage

U = Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture. For example, 10 U for phenol in water if the sample final volume is the protocol-specified final volume. If a 1 to 10 dilution of extract is necessary, the reported limit is 100 U. For a soil sample, the value must also be adjusted for percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero. For example, if the sample quantitation limit is 10 ug/L, but a concentration of 3 ug/L is calculated, report it as 3J. The sample quantitation limit must be adjusted for dilution as discussed for the U flag.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results.

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

C = This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag, instead use a laboratory-defined flag, discussed below.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action. This flag must be used for a TIC as well as for a positively identified target compound.

7

Qualifier Codes and Their Usage
Page Two

E = This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis. If one or more compounds have a response greater than full scale, except as noted in Exhibit D, the sample or extract must be diluted and re-analyzed accordingly to the specifications in Exhibit D. All such compounds with a response greater than full scale should have the concentration flagged with an "E" on the Form I for the original analysis. If the dilution of the extract causes any compounds identified in the first analysis to be below the calibration range in the second analysis, then the results of both analyses shall be reported on separate copies of Form I. The Form I for the diluted sample shall have the "DL" suffix appended to the sample number. NOTE: For total xylenes, where three isomers are quantified as two peaks, the calibration range of each peak should be considered separately, e.g., a diluted analysis is not required for total xylenes unless the concentration of either peak separately exceeds 200 ug/L.

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and all concentration values reported on that Form I are flagged with the "D" flag. This flag alerts data users that any discrepancies between the concentrations reported may be due to dilution of the sample or extract.

A = This flag indicates that a TIC is a suspected aldol-condensation product.

X = Other specific flags may be required to properly define the results. If used, they must be fully described, and such description attached to the Sample Data Summary Package and the SDG Narrative. Begin by using "X". If more than one flag is required, use "Y" and "Z" as needed. If more than five qualifiers are required for a sample result, use the "X" flag to combine several flags, as needed. For instance, the "X" flag might combine the "A", "B", and "D" flags for some sample. The laboratory-defined flags are limited to the letters "X", "Y", and "Z".

R = This flag is used for polycyclic aromatic hydrocarbons which show target compounds that do not meet secondary ion confirmation. In some instances a compound that does not meet secondary ion confirmation criteria may still be determined to be present in the sample after close inspection of the data by the analyst. Supportive data includes mass chromatograms maxima at the same scan for primary and secondary ions, as well as discernible quantitation interference with the secondary ion.



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CHAIN OF CUSTODY

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FOR
CITY OF ST. LOUIS PARK
RMAL PROJECT# 026523

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